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PROCEEDINGS ISSUE

This issue is devoted entirely to the Proceedings of the 68th Annual Meeting of the Alexander Graham Bell Association for the Deaf, Inc., held in Pittsburgh, June 22-27, 1958.

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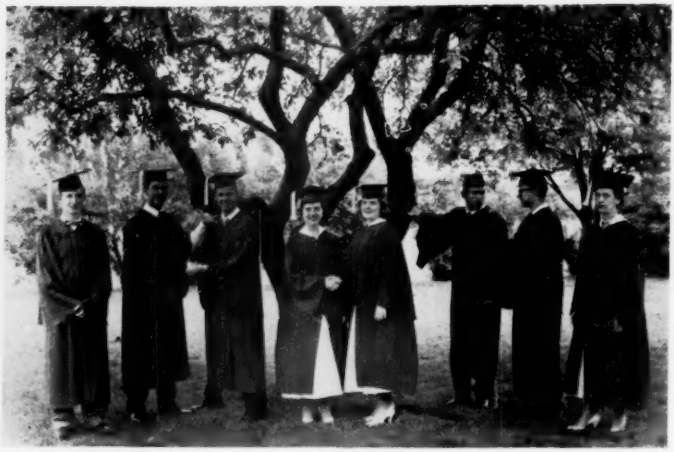

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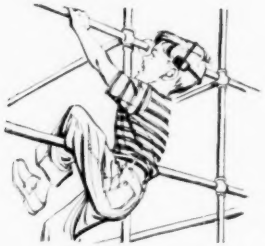

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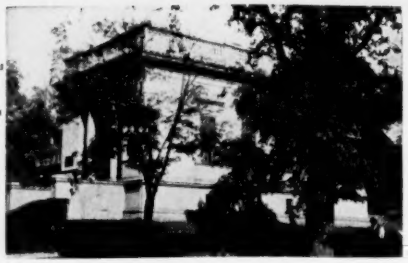

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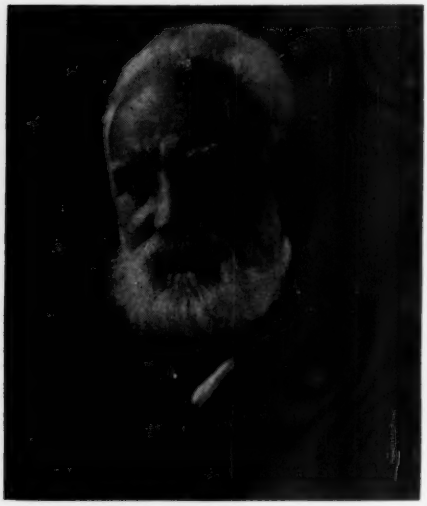

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Sixty-Eighth Annual Meeting
June 22-27, 1958

Opening Session Monday A.M. June 23

Presidential Address

DR. S. RICHARD SILVERMAN

I believe it is essential for an organization to know what its chosen leaders think about the problems with which the organization and the profession is concerned. The theme of this meeting is the deaf child at school and at home, and I wonder what it is that I can say to such a group as this that you have not heard before. I look through the audience and realize that you would be bored by a repetition of the old cliches and the old banalities. I can't guarantee that you'll not hear them again, but I'll try to dress them up a bit differently. And sometimes, the information theorists tell us that redundancy is good.

I thought it might be wise, since the theme of our meeting is the deaf child at school and at home, to make a rather vigorous bow to the parents in our midst who will be here this week organizing themselves and trying to see what kind of contribution they can make to our mutual problems. Perhaps it would be wise for us as teachers to create a kind of view of our profession that we can present to parents, or to put it another way, if a discerning parent were to look at our profession, what is the posture that he would observe?

I feel that our profession is not too far removed from certain large, powerful cultural forces that work on us without our quite knowing it. These forces tend to color our thinking, influence our activity and almost dictate our plans for us. I shall attempt to delineate these major cultural forces and to show the parents how these forces intrude themselves, sometimes constructively, sometimes destructively, on the profession in which we are engaged.

The first major force, particularly in education, although it is true in government, is our deep concern with our world outlook, our whole value system, our concern with what is important and what is not important. At the world level we see that another culture has a different set of values, a different yardstick by which it evaluates its activities. In our own nation we are embroiled in an ideological conflict about education that threatens either to tear our educational system apart or become a springboard for better things to come. We have seen the conflict between permissiveness and mandatoriness. We have seen the conflict between the so-called content people and the method people. We have seen our academic halls ring with debates ranging all the way from let's-get-back-to-the-old-fundamentals to the felt need people. What is so distressing about this conflict is that there are so few scientifically valid generalizations we can make about it. As we turn to the education of the deaf, we see this same problem of values and outlook. A teaching system is good or bad only to the extent that it achieves the objectives it sets for itself. In other words, it is influenced by its outlook, and in our profession we have a marked difference of opinion about the outlook that we have for our children. Here we are almost faced with a dilemma, because we are still in the value stage. You can't prove that it's good to be good. You just accept certain things. And so this cultural force that starts with the conflict of great cultures of the East and the West and all the subgroupings that we have, also intrudes itself upon our own thinking and in turn determines our practices. On the positive side I am happy to say that through the numerous groups and organizations and through individuals, attempts are being made to see what it is that happens to the people with whom we work and why it happens to them. Through these efforts perhaps we can get to a more objective way of determining what it is we are setting out to do. We have all heard the phrases, "They can't fit into hearing society. What they want is to be left alone." We have heard that, "If you get them early enough they'll be normal." We have heard that there is some body of knowledge, some technique, that if people will only apply it will remove all vestiges of handicap. We hear some parents say, "You know, my child has nothing to do with the deaf." They seem

to use this kind of statement as a measuring stick for achievement. These statements need to be looked at critically before determining a course of action. Cultural force number one, then, is the conflict in outlook, and the challenge to us to see if we can rid ourselves of certain vested — and, I daresay, emotional — interests that we have in determining outlook. This I consider, and say to the parents, is the number one problem of our profession. Everything else stems from that particular force.

The second force that we see at work in our culture today is the multiplication, almost logarithmic, of the media for communication — the rise of public relations. There have always been public relations, even in Biblical days. If one looks through the Bible he will see some individuals who would have qualified for a posh office on Madison Avenue. But what is different about today is that we have more avenues over which to public-relate. One doesn't attend a meeting of any committee but that someone doesn't say, "We've got to get some good public relations." Some of these individuals have even come to dominate our professional programs. We find that there seems to be a diversion which makes us think that the package is a bit more important than the product. In our attempt to meet the criteria for good public presentation, I believe if we have not misled people, we have frequently distorted the truth in order to make something dramatic. I'm not against public relations. I like good brochures and television shows and radio programs and panels and symposia and all the other apparatus that goes with it, but I think there is danger that we become too enamoured of the techniques of relating and not sufficiently concerned with what we have to relate. Some of us fear to confess a failure. We fear to parade our difficulties before the public, and it is only sweetness and light that we present. This is the posture we have, and I think on occasion we may have misled some of our parents. I trust that we will begin to use this second major cultural force more constructively.

A third major force in our culture that has influenced our profession, stated negatively, I would call it the degradation of the individual. Stated positively, I would call it the tendency for groups to cooperate with each other. One of the favorite techniques in American culture, when a problem is tough, is to appoint a committee, or to create another organization, or to create a council of one sort or another, or to say that we will have group action. This is the democratic thing to do. Everyone must have his say. And so we contribute group reports and we have committees doing all kinds of things. I think this has been carried a bit too far. I should remind you of an old Rabbinical dictum which says that if Moses were a committee, the Jews would still be in Egypt. What I am really getting at is this: There are certain problems of the classroom, in particular things that happen between a teacher and a child, that are not amenable to committee treatment. We must again elevate the individual and we must encourage him to just sit by himself and think about what he needs to do. The *Eroica Symphony* was not created by a committee, the Sistine Chapel ceiling was not painted by a committee, and even some of the great contributions in science were not done by committees, much as the increase of knowledge has caused us to work together. Most of the people in this audience know that I have a deep respect for science and the scientific method, but there are still certain aspects of teaching, of relations between a child and a teacher and between a mother and father and a child, that are not quite ready for laboratory treatment. We should continue in this profession to pay homage to the artistry of good teachers, and not feel that we can delegate the feeling of responsibility for what happens in the classroom to some other group. An abstraction seems to have taken over to create a climate in which it is difficult for the great artist, the great individualist, the non-conformist to function. I suppose it is a sign of advancing years when one makes this kind of statement. The clinical psychologists call this the old oaken bucket delusion. At any rate, I speak now of this third force, this degradation of the individual, of the great artist, in resorting to the committee, the group, the council, the team and so forth. There is still a great deal of artistry, a great deal of creativity, in a classroom and in a mother and father.

A fourth major cultural force in our country has been the tendency for lay people to become informed about professional problems and to participate in their solution. We see this everywhere. It is a major force, again because we have these media for communication. So we have parents, we have civic groups, and some of our major philanthropic activities have had their origin in lay groups. We have seen the agonizing periods of transition in the creation of institutions when the lay people have done such a good job that they ought to step out because what they have created is worthy of professional direction. To me the dangerous feature about this force is that it will tend to over-simplify some of the problems, and a slick communicator will tend to gloss over them, and in order to make something easy to understand, may not communicate it at all. I have seen this happen time and time again when somebody, as we say in the laboratory, tries to be the step-down transformer from the technical to create an explanation for lay consumption. Sometimes it goes from 220 volts to nothing and sometimes results in a really distorted piece of

mishmash. We have an example of the interested lay group here this week. It can be turned to constructive use. But I plead with the parents here to try to understand that some problems are not easily related, not easily communicated and not easily solved. The task before those of us who teach the children is to capitalize the lay participation into ways that do not intrude upon the best completion of our professional tasks and at the same time contribute to them.

Another major force is what I have labeled the "groping for grouping." As knowledge accumulates we tend to recluster ourselves around the different branches. This is a problem that confronts businesses as well as our great universities. The traditional university grouping has been around the academic disciplines. Now some universities feel that they ought to organize themselves around a problem. The problem may be labor relations or Latin American history, for example. In organizing around a problem they have to draw on some of the academic and traditional disciplines. Those who organize curricula for teacher education need to concern themselves about this groping for grouping. We see it illustrated most dramatically in the professional organizations in our field. Some say we are interested in the whole child and his psychological problems, it's around clinical psychology that our profession should be organized because we are dealing with children who are really normal except that they can't talk or can't understand. There are others who say we need to organize our associations along the dimension of communication, because this, or its lack, is the major attribute of the children with whom we are dealing. So a great many jurisdictional disputes have arisen, and we still see no solution in sight. This is a task to which those who succeed the people who sit on this platform ought to turn their attention.

Finally, another cultural force is the apparent conflict between objectivity and commitment. The objective individual takes no action unless he has the data and the facts. He must have a carefully documented basis for his precedence. Then there is the individual who says, "What we need is real dedication." For many these have come to be mutually exclusive attributes of human nature. To me one of the most interesting things about our profession is that there are practically no scientifically valid generalizations we can make about deaf children. About the only one we can make is that they don't speak because they can't hear. When we leave that generalization we move into opinion, and what is annoying to some of us is that we seem to have the firmest convictions about those issues about which there is the least amount of information. Here is the fundamental note that I want to sound to parents — very frequently it is difficult for us to document what we tell you about your children. The best we have to go by is our experience. But by the same token, we must turn our attention to finding out more about these things about which we ought not to be so firm in our convictions. We can all point to individuals that give us cause only for pride in our profession. We also know our failures. It is both a confusing and challenging kind of situation that we are free of these generalizations. This seeming conflict between objectivity and commitment need not necessarily be a dichotomy.

In summary, there is need in this profession for a greater combination of the intelligence and experience which adds up to wisdom. We need more of this, and we also need not in our aim to be objective sweep dedication and concern for others under the pedagogical rug. So I would say in conclusion, that we must be worthy of what we have to do here this week. After attending the fine program which Josephine Carr and her committee have arranged, we should better be able to say, "Ears have they not, but they hear, thanks to wisdom and love."

Ed. note: *Dr. Silverman did not speak from a prepared manuscript. The foregoing is a staff-written condensation of his recorded remarks.*

AN INVITATION TO PARENTS

Mothers and fathers of deaf children, and other interested persons, are invited to join the recently reorganized Roundabouts sponsored by the Alexander Graham Bell Association for the Deaf. Each Roundabout consists of a small group of parents of deaf children joined together as a correspondence club. Any parent, older relative or teacher of a deaf child who is an Alexander Graham Bell Association member is eligible to join a Roundabout. An effort is made to match the parents in each group so that their children are nearly the same age and with similar hearing problems.

Research Monday, 1:00-2:30 P.M. June 23

Chairman: Dr. Helen S. Lane, Principal, Central Institute for the Deaf, St. Louis

Academic Achievement

JUNE MILLER

A STUDY OF THE INCREMENT OF PROGRESS IN SELECTED AREAS OF ACADEMIC ACHIEVEMENT OF CHILDREN IN ELEMENTARY GRADES IN PUBLIC AND PRIVATE SCHOOLS

Dr. Miller is educational director of the Department of Hearing and Speech at the University of Kansas Medical Center, Kansas City, Kans. This study was made possible by the Institute of Neurological Diseases and Blindness, National Institutes of Health. It was carried out under the direction of Dr. Maurice Fouracre, Teachers College, Columbia University, N. Y.

The purpose of this study was, first, to determine if the deaf and the hard of hearing students manifest significant progressive increments in educational growth from one grade level to the next during the age range 11 through 15; second, to demonstrate whether there was a plateau, regression, or rapid growth on academic achievement tests; and third, to delineate the implications from such a study.

Questionnaires were sent to 105 schools in the United States. Of the 100 schools who responded, only 76 schools felt they had the desired information. Five schools did not respond. Ultimately 555 forms were received from 48 schools. However, only 144 children of this group had taken either the Metropolitan or Stanford Achievement tests each year for at least a five-year period. At this point we would like to express publicly our appreciation to the personnel of the schools who participated.

The information requested by the questionnaire, aside from the educational data as previously described, pertained to areas which are important in an attempt to assess the academic progress of children with impaired hearing. It was necessary, therefore, to obtain data relative to sex, method of instruction, the degree of deafness, and estimate of intelligence.

Other variables of importance which have been sought on the question were onset of deafness, age of school entrance, psychological test results, pure-tone hearing loss curve and whether a residential or a day pupil. Unfortunately, tabulation of the data revealed the information to be such that consideration of these variables with reference to the study did not seem justified. The number in the various categories was so small as to make statistical treatment ill-advised. Since the subjects had attained the chronological age of 15 years between September 1, 1955, and August 31, 1956, the test scores were consecutive for ages 11 to 15 years inclusively.

The experimental group was divided according to sex, degree of deafness, method of instruction, and four subtests of the achievement test; that is, Paragraph Meaning, Word Meaning, Arithmetic Reasoning and Arithmetic Computation.

In order that the material could be handled statistically the scores from the 1940 Stanford Achievement test forms were revised to the equivalent scores on the 1953 edition. Similarly, the forms of the 1948 Metropolitan Achievement tests were converted into the equivalent scores of the 1953 revision.

A statistical technique, useful in evaluating the significance of changes during time, is the Alexander Trend Analysis. To carry out this analysis it was first necessary to test for one of the assumptions made in the use of Analysis of Variance.

Hartley's test was applied to test for homogeneity of variance in the raw data. Whenever homogeneity of variance was not present in the raw data, transformations using reciprocal, square root or logarithms, were employed.

The results as shown in this study are similar to those of other investigators who have studied the achievement of deaf children in residential schools. For example, the deaf tend to do better and show less retardation in Arithmetic Computation, which is less dependent upon language, than in the other subtests. Similarly, the tendency for the tests involving language to become increasingly divergent from the norms has been emphasized by other workers. As previously noted, the trend to poorer performance at the upper levels suggests the influence of the progressively more abstract nature of the material.

Examination of the Paragraph Meaning curves for the nine classifications revealed them to be rectilinear. In two of the classifications curvilinearity at the 1% level was observed in Word Meaning and Arithmetic

Reasoning. There was an absence of linearity at the 5% level in Arithmetic Computation in two classifications.

The twenty-eight F-ratios for group slope were all significant at the 1% level.

In reviewing the curves for all nine classifications on the four subtests, it is evident that Word Meaning showed the greatest retardation. Then followed Paragraph Meaning, Arithmetic Reasoning and Arithmetic Computation for all groups with the exception of the hard of hearing boys taught by the combined method.

The F-ratios for individual slopes showed great individual reactions to the experimental variables, thus pointing up larger individual differences than would be expected by chance. Nineteen out of the 28 slopes were significant at the 1 or 5% level of confidence. Only two of the nine F-ratios for individual slopes for Paragraph Meaning were significant beyond the 5% level. For the subtest of Word Meaning five of the F-ratios for the individual slopes were significant at the 1% and one group at the 5% level. There was, therefore, greater variation for Word Meaning than for Paragraph Meaning. For the final subtest, Arithmetic Computation, F-ratios for three groups were at the 5% level and two groups were at the 1% level of significance.

In summary, individuals within the classification showed great variability. However, there was significant yearly growth for the ages 11 through 15 for all subtests.

The achievement scores of both the deaf and the hard of hearing evidenced great retardation as compared to the norms for hearing children, regardless of the method by which they were taught. The gap between the hearing norms and the obtained scores for the deaf and the hard of hearing subjects in this study tends to widen with age. In other words, greater retardation was manifested at the age of 15 than at the age of 11.

Although tests of significance between the means of the deaf and the hard of hearing were not computed, nevertheless, it appears obvious from the graphs that the difference in achievement on the four subtests was negligible.

It is quite obvious from these results that the educational achievement level attained at the age of 15 for these subjects is very similar to that reported in earlier studies, although this was a longitudinal study over a five-year period. The majority of the subjects had entered school at the age of six or later. Only 21 had received preschool training. Thus, scarcity of children who had attended preschool was such as to preclude any statistical comparison of children with preschool training with those who had not had such an opportunity.

The ratio in this study of children attending preschool to those who entered the regular school at the age of six was similar to that reported for the country as a whole in the January 1945 American Annals of the Deaf. This points up that even as late as 1945 very little had been done with reference to preschool training in this country.

Since the educational attainment of the children of this study was markedly similar to early research findings, it would seem to indicate that either methods for teaching the deaf have not changed or the present techniques are not very superior to those of yesteryear. In reality, very few studies have compared actual techniques of teaching subjective matter to deaf students. The need for research in this area of techniques of teaching subject matter, as well as in the area of the influence of preschool on future educational achievements is acute.

It will be recalled from the statistical analysis that, although the group of children who were hard of hearing was quite small, they did tend to show slightly better educational growth than those children who were deaf. However, it would seem that the hard of hearing children in the study were not using their residual hearing to a maximum.

Since these children had average intelligence, as indicated by teachers' estimates, maximum use of residual hearing should have increased their scores on the Word Meaning tests. They should have learned more speech and language through their hearing than was possible for children who were deaf. The findings were negative in this respect.

The possibility of mental retardation or neurological impairment cannot be entirely ruled out with the information at hand. But it seems reasonable to assume that they were of normal intelligence in view of the replies to the questionnaire. It would then appear that hard of hearing children educated in a school for the deaf tend to approach the mean education achievement of the deaf students. In other words, it would seem that a leveling effect educationally was operating. Hence, the hard of hearing child is not progressing as rapidly as might be expected in view of his advantage, especially in the area of language.

Although the subjects showed statistically significant increments from year to year in educational achievements, it will be remembered that the gap between hearing norms and the means of the acoustically handicapped subjects actually increased during the period under test, particularly in reading.

The lack of test results data was more apparent in the questionnaire returns of day schools for the deaf. Although in some instances children in the day schools had matriculated into the regular hearing classes, their number certainly represented a very

small portion of the total day school population. Questionnaires were also sent to the teachers in charge of classes for the deaf and the hard of hearing children in the junior and senior high schools for normally hearing children throughout the country. The fact that not a single pupil from a day school (it will be remembered that the 12 day pupils of this study attended residential schools) could be included in the study is a serious problem. Although three subjects had taken the American Achievement test, this appears indicative of a serious lack of organized testing procedures for day schools and many residential schools.

The hard of hearing subjects, educated as they were in schools for the deaf, tended to be similar in educational accomplishment to their deaf peers with comparable ability thus suggesting a leveling effect, possibly as a result of the environment.

The obvious lack of objective test data in schools for the deaf, as reflected by the number of questionnaires which had to be rejected in the study, emphasized the critical need for dynamic testing programs in all areas.

The need of further research was clearly implied in the study. The obviously small numbers in each of the groups of this study emphasized the need for concerted efforts among the administrators of the deaf to establish programs which may provide consistent data for further research. This statement does not necessarily mean that every school should foster the same curriculum; however, it does imply that standard methods for evaluating children and their progress could be made uniform in a large number of schools and classes. This procedure would afford a means for evaluating differences in teaching techniques which may exist.

In summary, it may be implied that there is a great need for preschool training, evaluation of teaching techniques, better development of the residual hearing of the group of hard of hearing children, and a well-organized, consistent, and longitudinal testing program in all areas of growth.

Frequency Discrimination

GERALD L. STRIZVER

FREQUENCY DISCRIMINATION OF DEAF CHILDREN AND ITS RELATIONSHIP TO THEIR ACHIEVEMENT IN AUDITORY TRAINING

Mr. Strizver is in the Research Department of Clarke School for the Deaf, Northampton, Mass.

It has been previously established, both experimentally and by the classroom teacher, that even a relatively small remnant of hearing can be made useful to the deaf child as a result of auditory training. It has been further found that there are individual differences in auditory achievement that are not clearly predictable from the usual clinical measure of the auditory capacities of individual children. In other words, pupils with similar degrees of hearing loss respond differently to similar auditory training programs. This fact suggests that there exist qualitative differences within the hearing remnant itself that are not necessarily apparent in the audiogram. The problem, therefore, is that of finding means of evaluating the hearing remnant, in terms other than its magnitude, with the hope of discovering the basis for these differences.

One approach that seemed fruitful is that of measuring pitch discrimination ability of a group of profoundly deaf children who show a wide variability in achievement with respect to auditory training. The hypothesis to be tested is that auditory discrimination of vowels and consonants in syllables, words and phrases depends to a considerable degree upon the capacity of the ear to discriminate pitch differences. Therefore, pupils who achieve relatively high scores in speech perception tests should also be better able to recognize differences in pitch. An experimental program has been started at the Clarke School under the directorship of Dr. Clarence V. Hudgins to investigate this problem.

This paper will report the findings of a preliminary study involving 20 advanced pupils which was conducted last year at the Clarke School. Of the 20 subjects used in this study, 17 are classified as profoundly deaf and three are classified as partially deaf. The stimuli for both the measurement of absolute thresholds for intensity and difference limens for frequency were pure tones. Threshold measurements were made for seven standard frequencies. Measurements of difference limens for frequency were made for three frequencies: 500, 1000 and 2000 cps. Modifications of standard psychophysical techniques were employed in the measurement of both absolute thresholds and difference limens for frequency.

It was demonstrated that profoundly deaf children are able to discriminate among tones of different frequencies provided the differences are sufficiently large. We found a wide variability in the magnitude of the differential threshold. All pupils tested were able to discriminate differences at 500 and 1000 cps, and most of them gave a reliable response at 2000 cps. It was found that frequency discrimination ability among profoundly deaf subjects never approaches that found among normal hearing subjects.

The data were analyzed statistically to determine the relationship between (a) hearing loss and frequency discrimination; (b) hearing loss and speech perception; (c) speech perception and frequency discrimination. A summary of the results follows:

(a) Hearing Loss and Frequency Discrimination: No significant correlation was found between the hearing losses at 500, 1000 and 2000 cps and frequency discrimination at these frequencies. This means that the relatively wide range of differences in frequency discrimination ability found among profoundly deaf subjects is apparently unrelated to degree of hearing loss as measured by pure tones. If our sample were extended to include the entire range of hearing loss from the normal to profoundly deaf ears, a relatively large correlation between degree of hearing loss and frequency discrimination undoubtedly would have been found. This relationship, however, does not appear to hold in the sample studied. This fact further supports the suggestion of the existence of qualitative differences quite apart from the magnitude of the hearing remnant.

(b) Hearing Loss and Speech Perception: No direct measure of auditory speech perception is available for these pupils because very few of the profoundly deaf children are able to understand any test words by ear alone. An indirect measure is available, however, which is the difference between the scores for lipreading alone (LR) and lipreading plus hearing (look and listen, LL). The assumption that the difference between look and listen scores and those for looking alone is a measure of the amount contributed by the ear is perhaps naive since we are not sure whether this relationship is simply an additive. However, it will be used as a measure of the contribution of the auditory component until a better measure is available. When this auditory speech perception score is correlated with the hearing loss, we find significant correlations between the hearing losses at 1000, 2000 and 4000 cps. Thus, the less the hearing loss at these frequencies, the higher the speech perception scores. On the other hand, no correlation was found between a hearing loss at 500 cps and speech perception.

These results show that auditory speech perception varies inversely with hearing loss for the frequencies at 1000 cycles and above, and that hearing in the low frequencies contributes little to that process when the higher frequencies are available. It should be borne in mind, however, that hearing loss is generally more severe in the high frequencies than in the low.

(c) Speech Perception and Frequency Discrimination: All pupils tested were able to give reliable frequency discrimination measures at 500 and 1000 cps and the majority, or 12 in 20, were also able to discriminate frequency differences at 2000 cycles. No tests were given at 4000 cycles. This ability to discriminate frequency in pure tones, however, is not completely related to speech perception. Analysis shows a significant correlation between speech perception and frequency discrimination at 500 cps, but no correlation between these variables at the 1000 and 2000 cps range. This is an apparent contradiction of the findings of the correlations of hearing loss to speech perception mentioned previously (b). There it was indicated that speech perception depended primarily upon the frequencies above 500 cps. Now we find that speech perception scores are highly correlated with frequency discrimination ability at 500 cps and there is no significant relationship at 1000 and 2000 cps. The answer to this apparent contradiction may be in the nature of speech signals themselves and in the shape of the hearing remnant of the profoundly deaf subjects.

Acoustically, speech is a highly complex sound wave composed of frequencies of varying intensities ranging from approximately 125 to 8000 cps. These vowels are represented largely by frequencies below 2000 cps while the consonants are largely represented by the frequencies above this range. The power spectrum of normal speech shows that the maximum acoustic energy lies in those frequencies below 700 cycles and that the energy declines rapidly in the higher frequencies. Furthermore, audiograms of profoundly deaf subjects show a larger remnant of hearing at 500 cycles and below, with usually a rapidly declining curve for the frequencies above 1000 cps. Responses to frequencies above 1000 cycles may be obtained only at very high intensities. Therefore, for most profoundly deaf subjects the high frequencies of speech may be barely audible or not heard at all even when highly amplified. Deaf subjects, therefore, must rely primarily upon the lower frequencies for auditory speech perception even though the actual amount of information carried by these low frequencies is relatively small. Thus it appears that limited auditory cues, including frequency discrimination ability, are available in this low frequency range, and it is the role of auditory training to establish habits of discrimination that aid in the perception process. At the same time, those subjects whose hearing remnant extends through the high frequencies are usually able to make greater progress under an auditory training program than those whose hearing cuts off at the lower frequencies.

Thus it appears from this study that the variability noted in achievement in auditory training may be due to the ability to discriminate pitch at the low frequencies, as well as

to the degree of hearing available in the high frequency range.

The study just described is a part of a more intensive program designed to study this problem. It was submitted to the Department of Psychology, University of Massachusetts, as a graduate thesis in partial fulfillment for the requirements for the degree of master of science. Additional data on both frequency discrimination and loudness discrimination are planned in the future.

The Effect of Hearing One's Own Voice Among Children With Impaired Hearing

LOUIS M. DICARLO

Dr. DiCarlo is Executive Director of Gordon D. Hoople Hearing and Speech Center, Syracuse University, Syracuse, N. Y.

Widespread interest in information theory has stimulated and challenged educators of the deaf to apply its basic principles in educating deaf children. General agreement exists concerning the function of audition as a principal controlling unit in the speech servosystem. Fairbanks[5] has carefully constructed a model system and hypothesized that since the ear acts as a correcting device in the auditory feedback circuit, it cannot be conceived as a receiver alone, but as an integral part of the speech mechanism. Since hearing facilitates and expedites control and refinement of speech and language development, most education programs for deaf children include a program of auditory training within the framework of a regular curriculum. A main consideration in determining the efficacy of auditory training for deaf children has been the method employed in assessing improvement. Egan[4] suggested a number of articulation testing techniques employing Spondee, PB words, and sentences. Hudgins[8,9,12] adapted these articulation testing methods in appraising speech reception abilities and the effect of auditory training of deaf children. His research reveals that even profoundly deaf children may profit from an intensive systematic auditory training program. The speech reception performance of the children in his experimental group was not only superior to the performance of the control group, but the experimental group also made more adequate educational progress.[8]

Wedenberg[16,17] carefully investigated the effect of auditory training of children with impaired hearing. He presented rationale, materials, methodology; and cited gains made by children through auditory training. His research unequivocally suggests that a systematic auditory training program not only develops more satisfactory speech reception scores, but contributes to the over-all vocabulary, speech, language and educational growth of these children.

Pre- and post-auditory training tests indicate that many children with profound hearing losses appear to profit by such training. In some of these studies the tests usually employed comprise lists of words and sentences. In spite of demonstrated improvement between the pre- and post-test scores, the question arises as to whether deaf children hear all the speech elements or whether they learn to capitalize on different verbal and nonverbal aspects of auditory cues.

A good deal of present research has been devoted to the use of delayed feedback to demonstrate that the speech of normal hearing subjects becomes disturbed during the time that the speech is recorded and played back through the earphones at delayed intervals.[3,10,11,13,14] Hearing subjects, speaking under delayed feedback conditions, impress the observer as struggling in producing speech.

Atkinson[1] observed such struggling effects and designed a study to determine whether or not the subjects could adapt to delayed side tone. Although the subjects improved with practice, he was not able to demonstrate adaptation to side tone in intensity or duration within the limits of his study. Black[2] studied the effect of delayed side tone on vocal rate and intensity, and suggested .18 seconds delay to be most effective in prolonging the vocal rate. Fairbanks and Guttman[6] reported .2 seconds as a critical delay in disturbing articulation. An interval of approximately .2 seconds produces radical deterioration on a subject's speech. The studies reported reveal a subject's speech is prolonged; his vowels and consonants are lengthened and distorted; rhythm breaks down and becomes greatly disturbed; intensity increases and often attempts to speak precipitate further deterioration.

Stromsta[15] estimated .0003 seconds as maximum propagation time from the vocal cords to the cochlea for bone conduction, and .0001 for air conduction. An increment of .0002 may not represent a significant difference so that arrival time may be considered not to differentiate between bone and air conduction transmission. These small time values would suggest that sound transmission under delayed side tone for continued speech may behave retroactively. This effect is reflected by the speaker's consonant and syllable repetitions indicating an attempt on the part of the speaker to establish what Atkinson[1] labels as behavioral homeostasis. Black[3] suggested two values of special interest, .06 seconds and .18 seconds. These values approximate phoneme and syllable duration. When the speaker repeats consonants he really repeats the

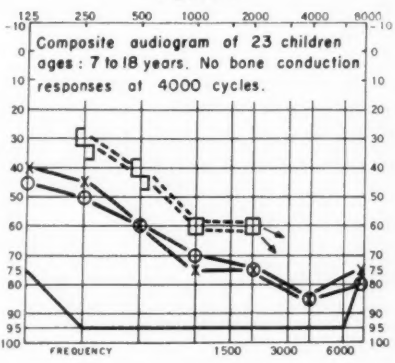
syllable which corresponds in duration to the critical delay time of approximately .2 seconds.

Hanley and Tiffany[7] employed electromechanically delayed side tone in auditory testing. They attempted to assess the reliability of techniques of measuring speech breakdown by delayed side tone as a function of intensity. The majority of the readers was identified when the delayed side tone intensity value was 20 db above threshold. One hundred percent accurate judgments occurred at 40-50 db above threshold. Since delayed feedback with hearing subjects demonstrates the extent to which they rely on hearing to control their speech production, the employment of delayed feedback suggested itself to study similar phenomena among children with impaired hearing. As previously indicated, certain questions manifest themselves in assessing the results of auditory training for deaf children. Many deaf children learn to utilize heavy vowel cues from the Spondee and PB word lists and also may employ rhythm and context in sentences. The present investigation was designed to explore to what extent children with impaired hearing rely on hearing to adjust their speech output. If these children correctly identify the phonetic contours of speech, their speech production should be characterized by similar disturbances as those of hearing subjects. The effects of auditory training would be reflected in their speech production.

Twenty-three children ranging in age from 7 to 18 years having hearing impairments with moderate to profound loss acted as subjects. The 23 subjects were either enrolled in the Syracuse University Summer Residence School or were pupils who had been receiving instruction at the Gordon D. Hoople Hearing and Speech Center. Twelve of the children were accustomed to wearing hearing aids and had received auditory training at the Gordon D. Hoople Hearing and Speech Center. Eleven of the children had worn hearing aids but had not had any auditory training prior to the testing. All of these children attended public schools.

Figure 1 presents a composite audiogram of the 23 children for air and bone conduction responses. The actual loss ranged from a minimum of 35 db to total loss in the speech frequencies (500, 1000, 2000 cycles). Two of the subjects had conductive losses, three had mixed losses and the remaining 16 had neural deafness. The average loss for the right and left ears of the 23 subjects was 68.5 and 70 db. The bone conduction responses indicated a predominantly perceptive type of loss. The distance between the bone and the air conduction losses was influenced by the five children with conductive and mixed hearing losses.

Figure 1



INSTRUMENTATION

The delayed feedback device was similar to that reported by Lee,[10,11] Fairbanks,[6] Spilka[14] and others. The instrument is a custom-made one consisting of a 15" per second tape recorder and playback, in which there are fixed erase, record and playback heads, with an adjustable loop between record and playback heads. The adjustable loop allows for changing the delayed time from .2 to .8 seconds. The over-all frequency response is flat ±2 db from 100-12,000 cycles. A basic part of the instrument included a Magnecorder, Type PT6-J. The recording level is adjusted by a copper oxide volume indicator. The level in the Permoflux PDR-10 earphones can be adjusted to approximately 127 db re. 0002 dyne/cm^2, and is metered by a vacuum tube Voltmeter (Heathkit AC) across the earphone circuit. A switch in the earphone circuit substitutes selectively dummy loads for either earphone.

A custom-built table model hearing aid was employed to provide amplification for different listening conditions. The hearing aid consisted of a two-stage voltage and a one-stage power amplifier. The frequency characteristic represented a flat curve ±2 decibels from 200-10,000 cycles excepting that its construction included a deliberate roll-off below 200 cycles to prevent overloading the Permoflux PDR-10 earphones. Volume control permitted an acoustic gain of 70 db re. 0002 dyne/cm^2. The output at the earphone circuit was 125 db. The gain was limited by the ability of the output to handle higher power levels. A General Radio sound level meter 1551-A, and a Magnecorder PT6-J completed the equipment for recording the speech samples.

PROCEDURES

Pure-tone and speech audiometry were administered to the 23 children prior to record-

ing their speech. The reading comprehension and word meaning sections of the proper form of the Stanford-Binét Achievement Test were also administered to each child. This permitted the computation of the pure-tone loss for each ear, speech reception thresholds, discrimination, reading comprehension and word meaning scores.

The children read a paragraph with the microphone leading into the PT6-J tape recorder and the sound-level meter located four feet from each child's lips. This distance was insured by anchoring each child in a chair and adjusting the microphone for both the recorder and the sound-level meter. Previous to the actual recordings the children were permitted a trial period when they read the paragraph without amplification, to acquaint them with the material. The children then read the paragraph under the following conditions:

1. Without amplification.
2. With 30 db amplification above speech production output without delayed feedback.
3. With 50 db amplification above the speech production output without delayed feedback.
4. With 50 db of amplification with .2 seconds delayed feedback.

Table 1 presents the intensity and time scores and variances, for the 23 children under the four listening conditions. Examination of the table immediately suggests very marked differences between listening conditions when comparing the performance under non- and delayed feedback conditions. Table 2 is an analysis of variance for intensity and

Table 1

Mean db intensity and time scores, and variances for twenty-three children with impaired hearing without amplification, with 30 db amplification, 50 db amplification above speech production level without feedback, and with 50 db amplification with delayed feedback.

		Without Amplification	With Amplification		
			Without Feedback		With Delayed Feedback
			30 db	50 db	50 db
Intensity	$\bar{X}$	61.81	60.86	59.05	73.14
	σ^2	9.86	11.74	10.10	6.31
Time	$\bar{X}$	26.58	26.30	25.37	53.55
	σ^2	23.85	26.46	19.09	222.18

Table 2

Analysis of variance for intensity and time for twenty-three children with impaired hearing without amplification, with 30 db amplification, 50 db amplification above speech production level without feedback, and 50 db amplification with delayed feedback.

	Source of Variance	df	SS	MS	F
Intensity	Between groups	3	2,640.64	880.21	77.34**
	Within groups	88	1,001.48	11.38	
	Total	91	3,642.12		
Time	Between groups	3	10,230.03	3,410.01	27.03**
	Within groups	88	11,100.50		
	Total	91	21,330.53		

		$F_{.01}$**	$F_{.05}$*
$F_{3,80}$		4.04	2.72

time for the 23 children under the different listening conditions. F values of 77.34 for intensity and 2.703 time level indicate statistically significant differences between the means beyond the 1% level of confidence.

Table 3 indicates the *t* values for intensity scores under different listening conditions for intensity without delayed feedback. The *t* value between listening conditions (1) and (2) of 2.64 is significant at the 5% level, while the *t* values of 4.71 and 3.68 between listening conditions (1) and (3), (2) and (3), reveal a statistically significant difference at beyond the 1% level of confidence. The table does indicate that the subjects can be differentiated under the different listening conditions. Table 4 presents the *t* values for intensity scores under different listening conditions with delayed feedback. The large *t*'s reflect statistically significant differences between the means at beyond the 1% level of confidence.

Table 5 shows the *t* values for time scores under different listening conditions without delayed feedback. Only under one listening condition between (1) and (3) does a significant difference exist. Performances of the children can be differentiated under listening conditions (1) and (3). Table 6 gives the *t* values for the time scores under listening

Table 3

t Values for intensity scores comparing the performance of twenty-three children with impaired hearing under conditions of listening without amplification, 30 db amplification, and 50 db amplification above speech production level without delayed feedback.

	Listening Condition	*t*	df	Significant Levels of *t* .05	.01
Comparison of Responses	Without amplification and 30 db amplification above speech production level without delayed feedback	2.64*	22	2.07	2.82
	Without amplification and 50 db amplification above speech production level without delayed feedback	4.71**	22	2.07	2.82
	30 db amplification and 50 db amplification above speech production level without delayed feedback	3.68**	22	2.07	2.82

Table 4

t Values for intensity scores comparing the performance of twenty-three children with impaired hearing under conditions of listening without amplification, 30 db amplification, and 50 db amplification above speech production level with delayed feedback.

	Listening Condition	*t*	df	Significant Levels of *t* .05	.01
Comparison of Responses	Without amplification and 50 db amplification above speech production level with delayed feedback	12.73**	22	2.07	2.82
	30 db amplification and 50 db amplification above speech production level with delayed feedback	13.98**	22	2.07	2.82
	50 db amplification and 50 db amplification above speech production level with delayed feedback	13.55**	22	2.07	2.82

conditions with delayed feedback. All the *t* values are significant beyond the 1% level of confidence. Analysis of tables 3, 4, 5 and 6, suggest that intensity and time changes occur when amplification is used with and without delayed feedback. Analysis of the recordings reveals that the deaf children modulate their voices better when their speech is amplified 30 db than without amplification, but their speech is more pleasant and more controlled under 50 db amplification without delayed feedback.

Analysis of the recordings when children are speaking under delayed feedback conditions reveals dramatic changes in their speech production. The responses indicate at least three specific kinds of adaptation:

1. The children exhibit a struggle to speak with repeating consonants and syllables. They often introduce extraneous syllables suggesting difficulty in establishing auditory control.

2. Some children exhibited disturbed speech production momentarily and then would utter one syllable or word and wait until the delayed effect wore away. This prolonged their speech unduly but did not appear as struggle behavior.

3. Under delayed feedback conditions the children could not control the intensity of their speech production. The pitch changes varied significantly while the children were speaking. Children with greater remnants of

Table 5

t Values for time scores comparing the performance of twenty-three children with impaired hearing under conditions of listening without amplification, 30 db amplification, and 50 db amplification above speech production level without delayed feedback.

	Listening Condition	*t*	df	Significant Levels of *t* .05	.01
Comparison of Responses	Without amplification and 30 db amplification above speech production level without delayed feedback	<1	22	2.07	2.82
	Without amplification and 50 db amplification above speech production level without delayed feedback	3.47**	22	2.07	2.82
	30 db amplification and 50 db amplification above speech production level without delayed feedback	1.93	22	2.07	2.82

Table 6

t Values for time scores comparing the performance of twenty-three children with impaired hearing under conditions of listening without amplification, 30 db amplification, and 50 db amplification above speech production level with delayed feedback.

	Listening Condition	*t*	df	Significant Levels of *t* .05	.01
Comparison of Responses	Without amplification and 50 db amplification above speech production level with delayed feedback	7.49**	22	2.07	2.82
	30 db amplification and 50 db amplification above speech production level with delayed feedback	7.53**	22	2.07	2.82
	50 db amplification and 50 db amplification above speech production level with delayed feedback	7.83**	22	2.07	2.82

hearing reacted with struggle behavior under delayed feedback conditions. Their speech broke down and resembled stuttering and some of the children even became emotionally disturbed. Children with profound losses extended the duration of their speaking time. Children with profound losses who had undergone auditory training revealed greater disturbances than children with similar losses who had not had auditory training, although all the children were affected by the delayed feedback conditions.

Table 7 gives the correlation coefficient for intensity scores under listening conditions without amplification, and 50 db amplification with delayed feedback. Correlation coefficient .16 reveals relationships no different from zero between these two conditions, and prediction of performance under listening conditions (4) could not be predicted from listening conditions (1). Table 8 shows the same relationships under conditions of listening without amplification and 50 db amplification without delayed feedback. A correlation coefficient of .464 is significant at beyond the 5% level and shows a relationship between the two listening conditions although the percent of predictable variance is quite low.

Table 9 reveals the correlation coefficients between intensity and time for two listening conditions without amplification and with 50 decibels amplification with delayed feedback. An r of .55 reveals a significant relationship between these two variables at beyond the 1% level, while the correlation between the variables under 50 db amplification with delayed feedback approaches zero and suggests chance relationship between the two variables.

Table 10 gives the correlation coefficients between hearing in the better ear; intensity and time for the four listening conditions; speech reception threshold, discrimination; reading comprehension and word meaning retardation scores in months. An r of .962 between hearing in the better ear and speech reception threshold suggests a strong relationship between these two variables. This indicates that a high relationship exists between hearing in the better ear and speech reception threshold. This finding is consistent with our present knowledge of audition. An r of —.808 indicates a high negative relationship between hearing loss and discrimination. The

Table 7

Correlation between intensity scores for twenty-three children with impaired hearing under conditions of listening without amplification and with 50 db amplification above speech production level with delayed feedback.

	Significant Values of r	
r	.05	.01
.16	.44	.56

Table 8

Correlation between time scores for twenty-three children with impaired hearing under conditions of listening without amplification and with 50 db amplification above speech production level without delayed feedback.

	Significant Values of r	
r	.05	.01
.464	.44	.56

Table 9

Correlation between the variables of intensity and time for twenty-three children with impaired hearing under conditions of listening without amplification and with 50 db amplification above speech production level with delayed feedback.

		Significant Values of r	
Listening Condition	r	.05	.01
Without amplification	.58	.44	.56
With 50 db amplification above speech production level with delayed feedback	= .00	.44	.56

greater the hearing loss, the poorer the discrimination score. This finding is also consistent. The *r*'s of .6509 and .5513 between hearing in the better ear, reading comprehension and word meaning, indicate significant relationships at the 1% level although the percentage of predictable variance is less than 50. These *r* values, all significant beyond the 1% level, reflect the contribution of hearing in establishing the relationships. The remaining eight *r*'s are not significant and support the earlier findings that the performances under different listening conditions prove unstable.

Table 11 provides the means, variances, *t* and F values for 11 children without auditory training and 12 children with impaired hearing with auditory training. The *t* values for hearing losses for both ears do not differentiate the two groups since there is less than a 5 db difference between the right ears and no difference between the left ears of the groups. The *t* value for the speech reception threshold does not differentiate the groups. The mean difference between the two groups is less than 1 db. A *t* value of 1.84 for discrimination does not prove to be statistically significant although a difference of 20.05 would be empirically different. Children who are able to discriminate 65% of phonetically balanced words hold a decided advantage over children who can only discriminate 45%. The F values for reading comprehension and word meaning retardation show significant var-

Table 10

Correlation between hearing in the better ear and intensity for the four listening conditions; time for the four listening conditions; speech reception threshold; discrimination; reading comprehension; and word meaning scores for twenty-three children with impaired hearing.

		r	r^2
Hearing in Better Ear Versus Intensity	Without amplification	.1183	.0110
	With 30 db amplification without delayed feedback	.1137	.0129
	With 50 db amplification without delayed feedback	.1370	.0188
	With 50 db amplification with delayed feedback	—.0507	.0188
Hearing in Better Ear Versus Time	Without amplification	—.2798	.0783
	With 30 db amplification without delayed feedback	—.2909	.0846
	With 50 db amplification without delayed feedback	—.3228	.1042
	With 50 db amplification with delayed feedback	.1439	.0207
Hearing in better ear versus speech reception threshold		.9620**	.9254
Hearing in better ear versus discrimination		—.8080**	.6529
Hearing in better ear versus reading comprehension		.6509**	.4237
Hearing in better ear versus word meaning		.5513**	.3039

	Actual df	Table df	.05*	.01**
r	21	21	.413	.526

iances between the two groups at the 5% and 1% levels. A t of 2.43 for reading comprehension retardation differentiates the two groups at the 5% level. The untrained group had a mean retardation of 27 months, while the group who had received auditory training were retarded only 13.5 months. The children who had not received training were more than one year retarded as compared with the group that had received training. A t value of 1.40 is not statistically significant for word meaning retardation, but the mean retardation for the untrained group of 13.73 months is 7 months greater than for the trained group. The table permits the conclusion that children with impaired hearing are much more retarded in reading comprehension than in word meaning.

SUMMARY AND CONCLUSIONS

Analysis of the data and the recordings manifest some striking phenomena:

1. All children regardless of hearing loss exhibited:
   a. Changes in rate of speech production
   b. Disturbances of speech rhythm
   c. Changes in voice quality
   d. Increased intensity
   e. Prolongation and distortion of vowels and consonants.
2. There was a definite and significant positive improvement between listening conditions with and without amplification without delayed feedback for intensity. The children modulated their voices more adequately and their rhythm was better when their speech was amplified 50 db above their speech production output with the delayed feedback.
3. Significant differences were obtained between listening conditions (1) and (3) for time without delayed feedback.
4. Significant differences appeared for time and intensity between listening conditions with and without feedback. In general, the duration of the speaking paragraph was much longer under delayed feedback conditions and the intensity of the voices as indicated on the sound level meter was significantly greater for speech production under delayed feedback conditions. A significant relationship existed between the variables of time and intensity without amplification but the correlation coefficients between intensity and time with delayed feedback were no different from zero.
5. Children adjusted differently according to the amount of hearing losses.
   a. Children with moderate hearing losses behaved more like normal hearing children. Their speech production broke down and they persevered in

Table 11

Means, variances, t and F values for eleven children with impaired hearing without auditory training and twelve children with impaired hearing with auditory training.

	Variable	Untrained (N = 11)		Trained (N = 12)		t	F
		$\bar{x}_1$	σ^2	$\bar{x}_2$	σ^2		
Hearing Loss	Right ear	68.00	447.40	72.83	328.15	.59	1.36
	Left ear	70.00	470.20	70.00	406.73	.00	1.16
	Speech reception threshold in db.	69.64	563.05	70.67	391.52	.11	.44
	Discrimination score percent correct	45.45	986.47	65.50	397.91	1.84	2.48
	Reading comprehension retardation in months	27.27	300.22	13.50	77.91	2.43*	3.85*
	Word meaning retardation in months	13.73	179.35	6.75	33.07	1.40	5.42**

	Actual df	Table df	.05*	.01**
t	21	21	2.08	2.83
F	12/11	10/11	2.86	4.54

their speaking attempts which resembled those of stuttering.

b. Children with severe and profound hearing losses adjusted by waiting until each word had lost its effect. This prolonged their duration of speaking.

c. A significant relationship appeared between the attack on speech production consistent with their hearing loss. The children with severe and profound hearing losses did not give evidences of hesitancy and stuttering behavior.

d. Children exposed to auditory training differed significantly from children who did not engage in a systematic and consistent auditory training program.

e. Educational retardation was greater among those children who had more severe hearing losses but who had not been exposed to auditory training routines.

Children who had not received auditory training were differently disturbed from children who had received auditory training, and came to depend upon hearing to control their speech production. Those pupils who depend upon auditory cues to correct their speech production exhibit greater disturbances when speaking under conditions which permitted them to hear their speech delayed.

6. Hearing loss and speech reception threshold scores did not differentiate between children who had and who had not received auditory training.

7. Speech discrimination scores while not statistically significant were empirically significant for children who had received auditory training.

8. Children who have received auditory training are less retarded in both reading comprehension and word meaning than the children who had not undergone the program of auditory training.

This investigation suggests the possibility of using delayed feedback procedure to appraise the effectiveness of auditory training. The magnitude of speech disturbances reflects the degree of dependency of the children upon hearing for control of their speech production. Delayed feedback technique also has possibilities for detecting those children who have non-organic overlays; and also to discriminate between those children who have true hearing losses and those children who have disturbed auditory processes.

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The Vocal Effects of Delayed Auditory Feedback and Their Implications for the Teaching of Speech to the Deaf

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The inter-relationships between the act of speaking and the self-perception of that act have been the subjects of numerous investigations in recent years. The speech problems of the deaf, which dramatically illustrate the sensory-motor interdependence that obtains in

the production of speech, is one area for which the findings of these investigations might prove to have some useful implications. These implications may be derived from the organized view of the speaking system presented by Fairbanks in his theory of the speech mechanism as a servosystem.[1]

The theory of the speech mechanism as a servosystem can be illustrated by a model which was provided by Professor Grant Fairbanks of the University of Illinois. This model of the speech system views the auditory, tactile and proprioceptive feedbacks as essential to the control of the speech output. The system's primary elements are an effector unit, a sensor unit and a controller unit. The effector unit produces the speech output and has three components: a motor, a generator and a modulator which corresponds to the human respiratory, vibratory and resonation-articulatory structures. Information about the effector unit's operation and its correlated speech output is conveyed to the sensor unit which consists of the ear and the tactile and proprioceptive end-organs. This information is then fed back to the controller unit which automatically directs the speech output of the effector unit.

One essential feature of a servosystem is automatic functioning. This is an essential feature of the model considered here. When an individual speaks, he consciously formulates what he wishes to say, but usually does not consciously direct the act of speech production. He does not consciously direct the individual movements of the respiratory, vibratory and resonation-articulatory structures. These movements are automatically controlled and integrated by anatomical structures corresponding to the controller unit of the speech model. These anatomical structures are not yet well known.

In the speech model, the controller unit issues orders to the effector unit which result in the effector unit making the necessary adjustments to produce the desired speech output. This output is fed back to the controller unit by way of the ear over two channels. Channel 1 in the model represents the air-conducted auditory feedback. Channel 2 represents the tissue-conducted auditory feedback. Information about the mechanical operation of the effector unit is also fed back to the controller unit by means of the tactile and proprioceptive feedbacks. The auditory feedbacks inform the controller unit whether the desired speech units actually were produced. The tactile and proprioceptive feedbacks inform the controller unit about the kinds of adjustments made by the respiratory, vibratory and resonation-articulatory structures. These two types of information are assumed to be correlated.

When this information is fed back to the controller unit, the actual speech output is compared with the intended speech output. If what was intended to be produced was actually produced, the controller unit triggers the next speech unit and the cycle of operations is repeated. If there is a discrepancy between the actual production and the intended production, the controller unit directs the respiratory, vibratory and resonation-articulatory structures to make the changes in adjustment necessary for correct production of the desired speech output. Essentially, this is how the proposed system operates.

Delayed auditory feedback can be used as a means of exploring the speaking system in human individuals. This technique permits the control and manipulation of the air-conducted portion of the auditory feedback. The individual wears a headset and speaks into a microphone. His speech is transmitted to a tape recorder. It may then be returned to his ears through the headset without any delay or it may be delayed by some given amount of time. In experimentation the speech is delayed by some fraction of a second and amplified before being returned to the ear of the speaker. The amplification aids in making the air-conducted auditory feedback the dominant feedback signal. These manpulations usually produce disturbance of the speaker's output. This disturbance takes the form of increased duration, errors of articulation, and increases in sound pressure and fundamental frequency.[2]

The present investigation was concerned with an experimental test of the theory of the speech mechanism as a servosystem. Since delayed auditory feedback interferes with only one of the sensory feedbacks, and that incompletely, the disturbance of the output is not complete. The individual is able to concentrate to some extent on the tissue-conducted auditory feedback and the tactile and proprioceptive feedbacks in an effort to overcome the disturbance of his speech output produced by delay of his air-conducted auditory feedback. It was hypothesized, therefore, that impromptu speaking should be more vulnerable to the effects of delayed auditory feedback than should oral reading, since the speaker, unlike the oral reader, must formulate his own verbal symbols and must rely more fully on the automatic features of the system which produces them in acoustic form. By virtue of having to concentrate on the formulation of a message, the impromptu speaker is less able than the oral reader to concentrate upon the undelayed feedbacks in an attempt to overcome the disturbance of his speech output.

This hypothesis was tested by measuring the vocal output of 75 young, male, normal-

hearing subjects who read and spoke with undelayed and delayed auditory feedback. The delay time used was .3 sec. Measurements of the vocal output were made from tape recordings. The basic measurements made were duration, correct words and sound pressure.

The major effects of the four experimental conditions upon the vocal output were as follows:

1. Duration, as measured in mean duration per word, was significantly longer for speaking in both delay conditions. The absolute and relative increases in duration produced by delayed auditory feedback were significantly greater for speaking than for reading.

2. The findings for correct words were similar to those for duration.

3. Delayed auditory feedback substantially increased the mean sound pressure. The increase in speaking exceeded the increase in reading.

4. The results support the proposition that speaking is more vulnerable to disturbance by delayed auditory feedback than is reading. This in turn tends to support the theory of the speech mechanism as a servosystem.

The theory of the speech mechanism as a servosystem has certain implications for the teaching of speech to the deaf:

1. The theory provides an organized view of the speech mechanism as an integrated system and not as a collection of individual components. From this viewpoint, it would appear best, in the initial development of speech, to use methods similar to the so-called Synthetic Method which operates on the whole speech mechanism rather than on any one component such as the articulatory structures. The so-called Analytic Method probably would serve better as a method of speech correction than as a method of speech development.

2. The theory emphasizes the importance of automatic control of the speech output. The automatic control is dependent upon the sensory feedbacks. With the deaf child it is important not only to utilize what remains of the auditory sense but to stress the importance of concentration upon the tactile and proprioceptive feedbacks. One method which emphasizes these sensory feedbacks is the Tadoma Method. This method stresses the importance of the child's developing tactile patterns to supplement his imperfect auditory patterns. Its techniques involve the child's concentrating on the muscular patterns of speech.

3. The theory provides an organized view of the speech mechanism and a theoretical framework within which to test some of our present teaching techniques and seek additional ones.

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A Profile of the Hearing and Speech of Gallaudet College Students

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A purpose of Gallaudet College is to provide all its students with a common background in the liberal arts, preparing them to assume intelligently their role as men and women in modern society and—within its resources—to prepare each of them for the profession or vocation which he is best fitted to pursue after graduation.

To achieve this purpose, special facilities are provided to lessen the burden imposed by hearing impairment. The Hearing and Speech Center is one of these special facilities. The Center has been organized to provide: (1) service to the college population, (2) research in hearing and deafness, and (3) graduate courses and clinical practice related to hearing impairment.

The data to be presented in this paper represent a precursor to the development of clinical procedures and research designed to facilitate the aims of the Center. These include basic information relative to age of onset, etiology, residual hearing, speechreading ability and speech proficiency. Although these data are of primary importance for intramural purposes, they might be of special interest to some of you.

The students of Gallaudet College are young men and women from most parts of the United States, its territorial possessions, and from several foreign countries as well. In addition to the regular two- and four-year programs a preparatory year is provided for students lacking certain prerequisites for entrance to the college.

Table I
Breakdown in Time of Occurrence

	Number		Percentage	
	Group	Sub-group	Group	Sub-group
I. Congenital	96		36.4	
A. Definite		38		14.4
B. Probable		58		22.0
II. Adventitious	135		51.1	
0–5 Mos.		4		1.5
6–11 "		6		2.3
12–17 "		10		3.8
18–23 "		11		4.2
24–29 "		5		1.9
30–35 "		5		1.9
36–41 "		7		2.6
42–47 "		4		1.5
48–53 "		8		3.0
54–59 "		2		0.8
5–9 Years		36		13.6
10–14 "		5		1.9
15–20 "		2		0.8
Undetermined		30		11.4
III. Undetermined	33		12.5	
	264		100.0	

In September, 1957 the number of students enrolled in the college, including the preparatory class, was 331. The average age of these students was 21 years. They were graduates of special schools and classes for the hearing impaired, as well as regular public and private schools.

Age of Onset. The ages at which hearing impairment occurred were categorized under three headings: congenital, adventitious and undetermined. These were defined as follows:

1. Congenital Hearing Impairment
   a. Definite—a hearing loss that occurred prenatally or paranatally.
   b. Probable—a hearing loss that was noted prior to the "normal" age of onset of speech, or that which was noted as a result of the failure of speech to develop spontaneously and for which there was no definite or probable cause at or prior to the time the loss was detected.
2. Adventitious Hearing Impairment
   a. Definite—a hearing loss that occurred postnatally as a result of disease or injury.
   b. Undetermined—a hearing loss that occurred postnatally after normal speech development and for which there was no known specific time of onset.
3. Undetermined—a hearing loss for which a fixed age of onset (prenatal, paranatal, or postnatal) could not be determined.

A summary of the ages of onset is presented in Table I. It is apparent that hearing impairment was present at birth in 36.4% of the students. Fourteen and four-tenths percent of the total population were classified as congenital-definites; 22% were congenital-probables. The onset of hearing impairment in 51.1% of the students occurred after birth. Of this 51.1%, approximately one-half (23.5%) were deafened during the first five years of life.

With respect to age of onset, the remaining 12.5% of the population were undetermined. The information supplied to the Gallaudet Health Department for these 33 cases was ambigous and/or contradictory. The genetic development in these individual cases was of some help but not sufficiently specific to permit categorizing them as congenital or adventitious.

Etiology. Etiological factors were considered under three general headings: (1) Exogenous Hearing Impairment—an organic hearing loss that resulted from disease or injury, (2) Endogenous Hearing Impairment—a genetically determined hearing loss, and (3) Undetermined—an organic hearing loss of undetermined etiology.

The exogenous and endogenous categories were subdivided into the following:

1a. Exogenous Definite—a hearing loss attributed to a known pathology or pathological process.

1b. Exogenous Probable—a hearing loss attributed to an illness for which the specific pathology was unknown, and, absence of hearing impairment in any known relatives.

Table II
Breakdown According to Etiology

	Number		Percentage		*
	Group	Sub-group	Group	Sub-group	
I. Endogenous	77		29.2		
A. Definite		28		10.6	
B. Probable		49		18.6	
II. Exogenous	174		65.9		
A. Definite		97		36.7	
1. Meningitis		47		17.8	6.7
2. Scarlet Fever		8		3.0	3.2
3. Measles		6		2.3	3.1
4. Maternal Rubella		5		1.9	
5. Whooping Cough		5		1.9	1.3
6. Infantile Paralysis		4		1.5	1.2
7. Suppurative Otitis Media, Mastoiditis		4		1.5	1.1
8. Suppurative Otitis Media, Mastoiditis, Mastoidectomy		3		1.1	1.0
9. Encephalitis		3		1.1	0.4
10. Mechanical Injury		3		1.1	1.2
11. Rh Incompatibility		3		1.1	
12. Pneumonia		2		0.8	1.7
13. Influenza		1		0.4	2.9
14. Maternal Pyelitis Toxemia		1		0.4	
15. Mumps		1		0.4	0.4
16. Syphilis		1		0.4	0.8
B. Probable		77		29.2	
III. Undetermined	13		4.9		
	264		100.0		

* After Shambaugh in Davis

2b. Endogenous Probable—arbitrarily defined on the bases of hearing impairment present in one or both parents and one or more relatives, and, absence of a definite or probable exogenous cause.

2b. Endogenous Probable—arbitrarily defined on the bases of hearing in one or more siblings and/or relatives, and, absence of a definite or probable exogenous cause.

Table II shows the frequency distribution of the various etiologies and the percentage of the population that each represents. In addition, the incidence of etiologies similarly classified in Shambaugh's[1] survey of 1928 is listed. In 65.9% of the Gallaudet population the cause was an external agent. Of the remaining one-third, 29.2% of the cases were endogenous; causes for 4.9% of the population were unknown.

Assessment of communication skills was an integral part of the program carried on in the Department of Hearing and Speech. Quantification of the expressive and receptive communication abilities was achieved prior to or at the time of enrollment. Residual hearing, speechreading ability and speech proficiency formed the basis for the type of instruction that each student received in the Hearing and Speech Center.

Residual Hearing. Initially, individual pure tone air and bone tests were administered. The results of these tests were used for screening and for purposes of classification. Those candidates whose hearing impairments were of a mild or moderate degree and who were judged to be potentially able to meet the educational and social demands inherent in colleges and universities designed for the hearing were advised to enroll in these institutions, at least for a trial period. In addition to their value in determining the degree of the impairment, these initial hearing tests revealed those few cases for which some type of medical treatment seemed indicated.

More comprehensive tests were administered to those students admitted to the College and Preparatory Class. A complete audiological assessment, including both pure-tone and speech audiometric techniques was carried out.

The Best Binaural Average (BBA) of the 500-2000 cps range for the total population was 78db at the 25th percentile; the 50th percentile BBA was 92+db (the plus sign

1. Fowler, E. P. "Medical Aspects of Hearing Loss," *Hearing and Deafness*, Ed. by H. Davis, New York: Murray-Hill Books, Inc., 1947, p. 89.

Fig. 1 Total Population Number = 331

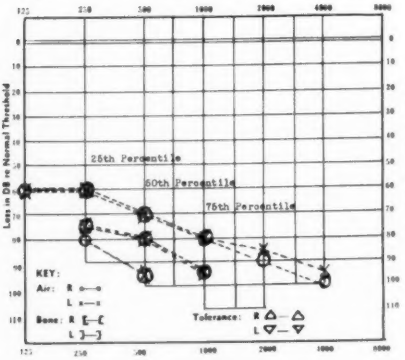

Fig. 2 Preparatory Class '57-'58

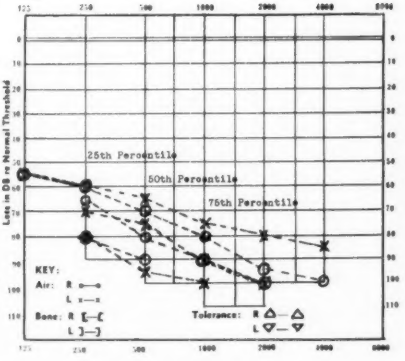

Fig. 3 Freshman Class '57-'58

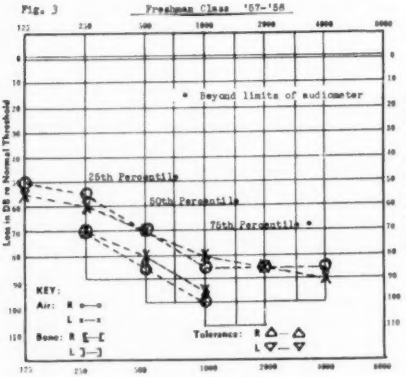

Fig. 4 Sophomore Class '57-'58

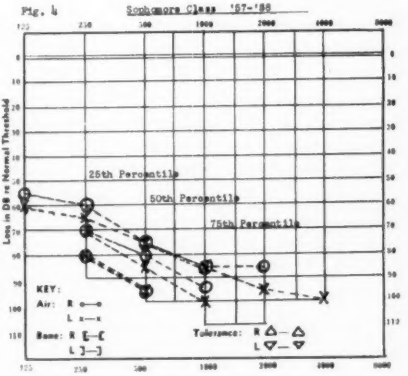

Fig. 5 Junior Class '57-'58

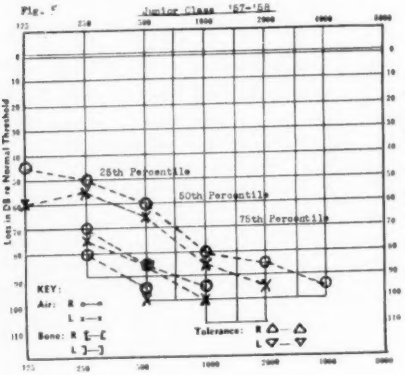

Fig. 6 Senior Class '57-'58

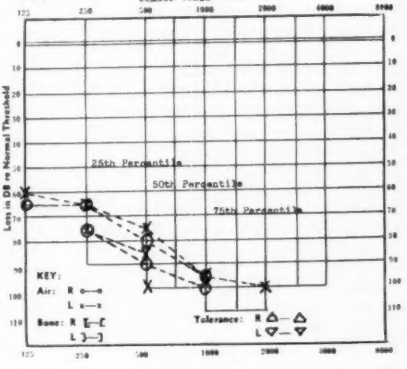

Table III
The Best Binaural Average (BBA) per Class and Total Population

Class	25th Percentile	50th Percentile	75th Percentile
Total Population	78db	92+db	98+db
Preparatory	73db	88db	97+db
Freshman	78db	92+db	100+db
Sophomore	81db	92+db	98+db
Junior	75db	93+db	98+db
Senior	90db	95+db	100+db

indicates that one or more frequencies of this range exceeded the 100db limit of the audiometer and thus precluded the computation of an arithmetic average); the 75th percentile BBA for the total population was 98+db. The BBA per class and total population are summarized in Table III.

Figures 1, 2, 3, 4, 5 and 6 represent the composite and individual class audiograms for 1957-58.

Table IV illustrates the categories into which the students were placed on the bases of pure-tone audiometry, speech audiometry and performance with amplification. Approximately 20% of the students (Categories 1A and 1B) demonstrated substantial benefit from the wearable type hearing aid. For an additional 20% (Category 2), communication seemed to be facilitated in terms of awareness to sound, speechreading and speech. Conclusive evidence in this respect with the college population is lacking at present but research regarding these possibilities is now in progress. Category 3, which represents approximately 35% of the population, will also be investigated in a similar manner before definite conclusions can be reached concerning the benefits of wearable amplification. Among many questions requiring answers are: Is there a period of "readiness" during which amplification must be introduced if it is to be of value? To what extent can a wearable hearing aid facilitate the communication skills of those adults whose impairment precludes understanding through the ear alone?

Table IV—Hearing

Category 1A
Speech reception threshold determined by spondaic words and repeated correctly at least 25 percent of Harvard PB Word List. (Approximately 10% of total population.)

Category 1B
Speech reception threshold determined by selected spondaic words and repeated correctly less than 25 percent of Harvard PB Word List. (Approximately 9% of total population.)

Category 2
Failed to repeat correctly selected spondaic words and frequency range of pure tone threshold responses extended to 3000 cps. (Approximately 20% of total population.)

Category 3
Failed to repeat correctly selected spondaic words and frequency range of pure tone threshold responses extended to 1000 cps. (Approximately 35% of total population.)

Category 4
Failed to repeat correctly selected spondaic words and 1) responses to pure tone stimuli not extended to 1000 cps or 2) no responses to pure tone stimuli elicited at limits of audiometer. (Approximately 26% of total population.)

Speechreading. The Utley and Tracy Clinic tests were used to estimate each student's relative speechreading ability. Although the Tracy Form A sentences seemed to be slightly more difficult than the Utley A sentences, there was a high correlation (.88) between these two tests. Table V summarizes by class standing the relative speechreading ability as determined by the Utley Form A. Of a possible score of 31, the total population mean was 17.83, SD 7.17. No significant differences emerged among the classes.

For clinical purposes (See Table V) the students were placed in homogeneous groups for speechreading instruction. Table V illustrates the groupings which were carried out relative to one or more SD's above or below the mean for the total group. Placement in therapy on this basis proved to be very useful.

Speech. Speech was rated by four Hearing and Speech Center staff members who were familiar with the speech of the deaf. Table VI includes the criteria and categories of speech proficiency. The speech of approximately 40% of the students was readily intelligible to sophisticated listeners and it was suggested clinically that this would also hold for unsophisticated listeners. Category 2 (30%) was fairly intelligible to the trained listeners. However, listening experience would be required in order for the average lay person to comprehend this level of speech proficiency. Categories 3A and 3B (25%) would

Table V
Speechreading U-A

Class	n	Mean	SD	Categories 1 (+2SD)	2A (+1SD)	2B (−1SD)	3 (−2SD)	Total
Preparatory	90	18.19	7.35	20	31	23	16	90
Freshman	67	18.46	7.06	15	24	19	9	67
Sophomore	58	18.07	7.24	12	22	13	11	58
Junior	44	16.00	6.88	5	16	14	9	44
Senior	39	17.62	7.19	7	13	13	6	39
Total	298	17.83	7.17	59	106	82	51	298

Table VI—Speech

Category 1A
Readily intelligible speech; spontaneously acquired with retention of good quality. (Approximately 20% of total population.)

Category 1B
Readily intelligible "taught" speech with artificial quality. (Approximately 20% of total population.)

Category 2
Fairly intelligible speech; fairly good voice quality, rhythm and articulation. (Approximately 30% of total population.)

Category 3A
Barely intelligible with fair voice quality, rhythm and articulation. (Approximately 15% of total population.)

Category 3B
Barely intelligible with poor voice quality, rhythm and articulation. (Approximately 10% of total population.)

Category 4
Unintelligible speech. (Approximately 5% of total population.)

very likely be unintelligible to unsophisticated listeners. The distinction was made primarily for training purposes. Those in Category 4 were unintelligible to trained listeners.

In conclusion, each student was considered from the standpoint of his receptive and expressive communication skills. The status of his residual hearing, his speechreading ability and his speech were assessed and therapy was planned according to the relative strengths and limitations in each of these areas.

Limitations on the Use of Intelligence Scales to Estimate the Mental Ages of Children

ROBERT C. BILGER

Dr. Bilger is research associate at Central Institute for the Deaf, St. Louis. The work referred to in this talk was carried out at Central Institute under a grant from the Institute of Neurological Diseases and Blindness, National Institutes of Health.

The concept of mental age is based on the well-known fact that the performance of children on any given task tends to improve, either in terms of the number of errors or of the time taken to complete the task, as the children get older. Figure 1 illustrates the manner in which relative achievement or performance improves as a function of chronological age. In this figure we can see that relative achievement improves rapidly between 5 and 10 years of age and then improves more slowly between 10 and 15 years of age. If chronological age were extended below 5 years and above 15 years in this figure, we would see that the relative achievement continues to decrease sharply as age decreases. Just before the child reaches the age for which it becomes too difficult, the curve might flatten out. Above 15 years we would see that relative achievement remains constant until the age of about 30 years and thereafter falls off gradually as age increases.

The curve that I have described as relating chronological age to performance is an idealized one based on experience with many different tests. There is no one test for which performance varies with chronological age in exactly the same manner I have described. The age at which children can first perform the task, the rate at which performance improves, and the age at which the plateau in performance is reached all vary from test to test.

There have been two general approaches to estimating mental age from these curves relating chronological age to performance. In one of these approaches a battery of tests is selected for each age level so that 60% of the children in that age group meet the criterion

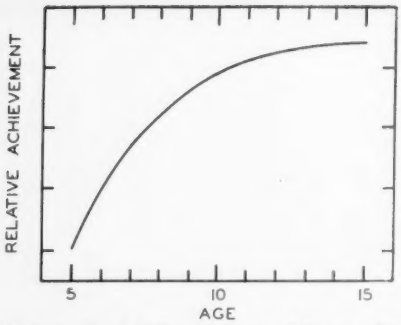

Figure 1. Idealized curve showing the improvement in performance or relative achievement as a function of chronological age.

for passing, so that a larger percentage of children in the next older age group meet the criterion for passing, and so that a much smaller percentage of the children in the next younger age group meet the criterion for passing. For example, the criterion for passing a test at the seven-year-old level would be set so that 60% of seven-year-old children pass the test, 80% of eight-year-old children pass the test, and only 40% of six-year-old children pass the test. The estimate of mental age is derived from the number of subtests that are passed for all age levels. The Stanford-Binet was standardized and is used in a manner similar to the one outlined here.

In the second approach to estimating mental age from the curve relating performance to chronological age, one battery of subtests is used over a very wide age range. A large sample of children representing each desired age group is used on each test. A curve like the one shown in Figure 1 is constructed to be used as a norm. When used as a norm, the abscissa is treated as mental age, and the child is assigned the mental age corresponding to his relative achievement. When standardizing a test in this manner, no child may be retested as part of an older age group, because the second result might be biased as a result of the earlier administration. The second method of standardizing and scoring estimates of mental age has been used with most performance type intelligence tests.[1,3,5,6] When a test has been standardized in this manner, it is usually referred to as a *scale*.

Performance scales, of course, have been very useful for measuring the mental age of children who are deaf or have other language handicaps. The usefulness of these performance scales, however, is that they can be administered and scored without assuming any verbal skills on the part of the children being tested, and not that they are scales. We shall see, in fact, that there are limitations on the use of these tests to estimate mental age that occur because they are scales.

The limitation to be discussed here is related to the gradually sloping portions of the curve relating performance to chronological age which occur when the test is too difficult for the children of a certain age, or as the test is reaching its plateau. For these flat portions of the curve it is difficult, if not impossible, to assign mental age correctly. Mental age can be estimated precisely only when the curve relating performance to chronological age is relatively steep.[2]

The purpose of this study was to attempt to demonstrate the limitation that is placed on estimating mental age from performance scale in the age range for which the curve relating performance to chronological age is relatively flat. Raw data (performance in terms of points earned or time taken to complete the test) available at Central Institute for the Deaf were tabulated and compared to the normative data used in estimating mental age with the CID Advanced Performance Scale.[4] Where these CID data were comparable to the normative data, statistical analyses were conducted to determine if the tests that make up the Advanced Performance Scale discriminate among age groups in the gradually sloping portions of the curve relating performance to chronological age.

Raw score data for 573 children between the ages of 4 years 6 months and 13 years 5 months were tabulated in intervals of one year. The interval used has the year as its midpoint, from 4 years and 6 months to 5 years and 5 months for example. Only results from the first administration of the tests were used here.

Of the nine tests included in the CID Advanced Performance Scale, only four are used for the age range between 5 and 13 years, and only these four tests will be considered here. These four tests are the Seguin Formboard, the Kohs Block-Design Test, the Healy Picture Completion Test, and the Knox Cube Test.

For each of the four tests the mean raw score and the standard error of that mean was computed for each age interval. These statistics, as well as the number of cases in each age interval, are presented in Table 1. A graph showing the normative data and the fit of the CID data to this norm has been prepared for each test.

Seguin Formboard. The Pintner-Paterson norm[6] for the Seguin Formboard and the mean time (in seconds) taken by the children in each age interval to complete this test are shown in Figure 2. In this figure time has been plotted from more to less so that the curve will have the same general form

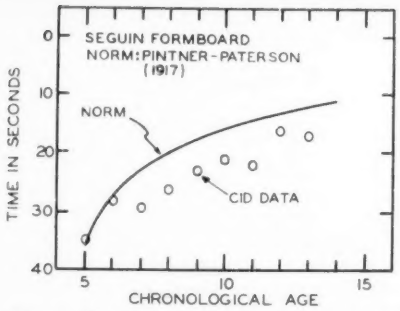

Figure 2. The number of cases upon which each point is based and its standard error are presented in Table 1. The ordinate for this figure has been inverted so that the curve would have the same general shape as the other curves presented here.

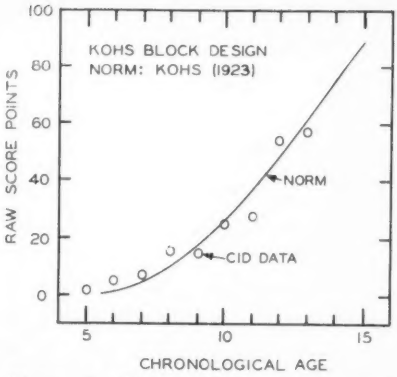

Figure 3. The number of cases upon which each point is based and its standard error are presented in Table 1.

as the others presented here. The mean times for the CID data for the ages between 7 and 13 years consistently lie below the normative values. When the standard errors of the means of the CID data are used for comparison, however, all of the means are found to lie within one standard error of their respective normative values.

Although the CID data show an over-all improvement in performance as a function of chronological age, there are two deviations from this trend. The most striking of these deviations is that there was no improvement from the six- to seven-year-old group for the CID data. The age range is not in a flat portion of the norm and the samples at six and seven years were quite large, 161 and 105 children respectively. The source of this discrepancy is not apparent and should be tracked down.

Between the ages of 7 and 10 years, the trend of the CID data shows an orderly improvement in performance, less time to complete the test, as age increases. Beyond this point, there is little consistency however. Statistical analysis reveals there is no significant difference between 10- and 11-year-old children or between 12- and 13-year-old children. The difference in performance between the 10-11 year group and the 12-13 year group is significant at the 5% confidence point, however. (A single classification analysis of variance was used to make these comparisons.)

Kohs Block-Design Test. The normative data of Kohs[3] and the mean point scores obtained at each age interval of the CID data are presented in Figure 3. In this case the flattened portion of the norm occurs for the youngest ages being considered here. As a matter of fact, the norm for the Kohs Block-

Table 1

AGE	No. of Cases	Seguin Formboard* Mean	Seguin Formboard* S. E.	Kohs Block† Mean	Kohs Block† S. E.	Picture Completion† Mean	Picture Completion† S. E.	Knox Cube‡ Mean	Knox Cube‡ S. E.
5	108	35.8	8.2	1.6	.8	103	28	2.2	.5
6	161	28.4	3.9	4.1	3.2	158	32	2.9	.5
7	105	28.9	5.2	7.1	3.8	181	44	3.4	.6
8	61	26.4	7.0	15.6	7.7	245	60	3.5	.8
9	52	23.2	4.9	14.7	5.8	310	58	4.2	.7
10	31	20.9	6.4	25.2	18.0	345	76	4.4	.8
11	25	22.2	13.5	27.4	8.8	419	70	5.0	.7
12	13	15.9	2.9	54.3	26.1	418	91	5.1	1.0
13	17	16.6	6.0	57.1	19.6	426	88	5.1	1.0

* Means are in seconds taken to complete the test.
† Scores are in points, based on time taken and number of errors.
‡ Scores are the number of lines or patterns completed.

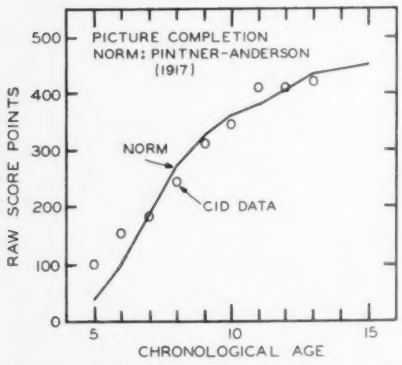

Figure 4. The number of cases upon which each point is based and its standard error are presented in Table 1.

Design Test does not go down to five years and at six and seven years the average child is expected to complete only the simplest patterns in the series. The results of the single classification analysis of variance performed on the data for six- and seven-year-old children fails to show that these two groups differ in point scores. This test is probably too difficult for the average six- or seven-year-old to handle, and as a result, estimates of mental age might not be precise for such children.

For the children eight years old and older, the CID data fall close to the normative values. The mean point scores of the CID data for the 8- to 13-year age range all lie within one standard error of their respective normative values.

Healy Picture Completion. The normative data of Pintner and Anderson for the Healy Picture Completion Test[5] and the mean point scores for the CID data are presented in Figure 4. Again the CID data are within one standard error of the means for their respective normative values. This test discriminates quite clearly between successive ages below 11 years. The single classification analysis of variance for the 11-, 12- and 13-year-old children shows that no significant difference exists among these three age groups.

Knox Cube Test. The normative data of Pintner and Paterson[6] and the CID data for the Knox Cube Test are presented in Figure 5. This norm warrants special attention because of the plateaus that occur for ages 8, 9 and 10 and for ages 11, 12 and 13. If a nine-year-old child successfully completes six lines of the Knox Cube Test, then the scorer has no way of knowing on the basis of this norm whether the child's mental age is 8, 9 or 10 years old. It was this quandary that motivated this research.

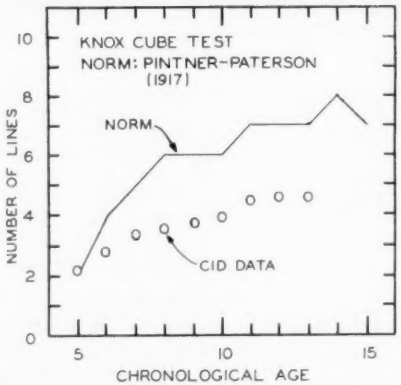

Figure 5. The number of cases upon which each point is based and its standard error are presented in Table 1.

In the case of the Knox Cube Test, the CID data deviate from the normative value at every point except at five years. For the 8- and 11-year-old children, the deviation from the normative values is significant at the 1% level of confidence. This result is not surprising, since most of the experience with this test at CID indicates that both the deaf and aphasoid children do more poorly on this test than they do on any other.[8] It should be pointed out that two-thirds of the children in this sample were enrolled as pupils at CID at one time or another and that the other one-third of the children were enrolled in an out-patient speech clinic or had been evaluated at CID.

It is difficult to use these data to evaluate the discriminative power of the Knox Cube Test because of the large discrepancies between the normative and CID data. It is interesting, nevertheless, to notice that there are statistically significant differences between successive age groups only where the normative data indicate that they should occur. Where the norm indicates a plateau, the differences among age groups were found to be not significant.

Retests. Earlier it was pointed out that there is the possibility that a retest on a performance test might be biased since the same test is used over such a wide age range. Because the children enrolled at CID are retested routinely every two years, it was possible to obtain test and retest data for 83 deaf children. Statistical analysis of the test and retest IQ scores indicates that the second IQ score was significantly higher than the first IQ score for the Kohs Block-Design Test, the Healy Picture-Completion Test, and the Knox Cube Test. The increases in IQ score

on retest were 5, 12 and 13 points respectively.

IQ scores rather than raw scores or mental ages were used in this analysis because the latter two are expected to increase over a two-year period. The IQ score, however, should remain constant. The significant increases noted above indicate that the second raw scores and mental ages showed more improvement than would be expected for a two-year interval.

It was pointed out that no single intelligence test follows the idealized curve relating improvement in performance to chronological age. Since mental age can be estimated efficiently only for ages where relative achievement is improving rapidly as a function of chronological age, tests should not be used in the age ranges where performance is improving only gradually with age.

Raw score data were collected at Central Institute for the Deaf on the Seguin Formboard, the Kohs Block-Design Test, the Healy Picture Completion Test, and the Knox Cube Test. These data were compared to the normative data used at CID to estimate mental age from these tests. The sample of children was comprised primarily of deaf and aphasoid children enrolled at CID. The sample was skewed with respect to age in that 65% of the children involved were under eight years of age, 25% were between the ages 8 and 10 years, and only 10% were 11 years or older.

On the basis of the sample of children available for this study, the following conclusions seem warranted:

1. The Seguin Formboard discriminates among the ages 7 through 10 years. The discrepancy noted between six and seven years cannot be explained in terms of these data, but is probably a result of sampling bias.

2. The Kohs Block-Design Test is too difficult for the average six- or seven-year-old child, since it failed to discriminate between these two age groups (sample size of 161 and 105 respectively) even though they both were close to the norm. For children eight years or older, this test appears to discriminate very well.

3. The Healy Picture Completion Test shows very orderly improvement as a function of age from five years through 10 years of age. The CID data, however, indicate that there is no difference in the performance of 11-, 12- and 13-year-old children. With respect to the failure to find improvement as a function of chronological age beyond 11 years of age on this test, it should be noted that only 10% of the sample was in this age range.

4. On the Knox Cube Test large deviations were found between the normative and the CID data, in that the children in this sample fell well below the normative values above five years. The plateaus seen in the normative data also appear in the CID data, however.

5. The analysis of test-retest data for 83 deaf children indicated significant improvement on the Kohs Block-Design, the Healy Picture Completion, and the Knox Cube Tests. Since retesting is probable in the case of handicapped children, this shift in IQ score on retest is a serious shortcoming of the performance scales, especially since the person evaluating a test result does not always have access to the record of previous testing.

The limitations that are encountered when a mental age must be estimated when performance has reached the plateau that occurs around 14 years of age can be avoided by using the scaling techniques employed by Wechsler. The use of such techniques at lower ages, however, involves discarding the concept of mental age. The concept of mental age may not be vital to measuring intelligence, but it is important to evaluating a child within a school program. The limitations encountered either when the test is too difficult for young children or too easy for older children, could be avoided if a performance-type battery of tests standardized in a manner similar to the Stanford-Binet were available.

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Chairmen: Mildred McGinnis, M.S., Director, and Dr. F. R. Kleffner, Assistant Director, Division of Speech Correction and Pathology, Central Institute for the Deaf

Teaching Speech and Language to Aphasic Children

FRANK R. KLEFFNER

Dr. Kleffner is associate director of the Division of Speech Correction and Pathology at Central Institute for the Deaf.

At Central Institute for the Deaf there has been a program for both the *assessment* and the *teaching* of aphasic children for over 30 years. From the very beginning of this work, the diagnosis and description of linguistic problems has been engaged in solely for the purpose of determining what educational procedures should follow. The primary feature of the program has been the teaching of aphasic children.

At the present time we are actively engaged in teaching over 100 children we consider to be aphasic. There is an enrollment of 60 in nine full-time classes for aphasic children, and an additional 60 aphasic children are receiving intensive individual teaching on an outpatient basis. The demand for this teaching far exceeds what we can begin to meet. We like to feel that much of the present demand is due to the results we have achieved. I shall outline for you six principles which we feel are basic in the techniques we use for teaching the children we have classified as aphasic.

I. *We feel that the basic problem of the children we classify as aphasic is a deficit in speech and language.* Other problems which these children may have are viewed as concomitants of the lack of speech and language. Our work with each aphasic child begins as directly with the teaching of speech and language as that child's behavior will allow. The development of rapport, control of behavior, and the creation of the desire to communicate are worked for in the specific context of teaching speech and language. Typically, the child will have been started on the production and learning of individual speech sounds during his first hour of teaching. From the very beginning, the teaching of speech and language is the base and core of our entire program for aphasic children and the most significant dimension in our final evaluation of the success of our work with each aphasic child is the extent to which he can communicate through speech and language.

II. *The procedures are organized into a structured and systematic progression through definite levels of ever-increasing linguistic complexity.* The child's work at any given level of complexity grows out of and utilizes the skills established at the preceding levels; establishes and provides experience at a new or more complex level; and when added to the previously learned skills, leads directly to the next level of complexity.

III. *Our procedure is analytical.* We always proceed from the simple to the complex. We begin our teaching of speech and language with the units of sounds and letters. The child is taught to produce individual speech sounds. Each sound is associated with written letter symbols following the Northampton-Yale Charts. These letters and sounds are then combined into nouns and into more complex language forms. Once the child has gained the ability to produce the sounds of the language from the written form, the basic tool has been established for use throughout the remainder of our work with the child.

IV. *There is systematic sensory and motor experience through the four specific skills of reading, writing, speaking and understanding speech. Visual* experience is provided through reading written language, observation of the articulation of the teacher and carefully monitored writing. *Motor* and *kinesthetic* experience is provided through the requirement for carefully produced and accurately monitored articulation of all phonetic elements. *Auditory* experience is provided through practice in differentiating and identifying words and language through hearing alone and through accurate self-monitoring in speech. Each of the visual, auditory, motor and kinesthetic experiences mentioned above is developed *separately* and associated with the others through *systematically* structured drill and experience.

V. *We use expression as the starting or base point in building language.* The child is first taught to produce individual sounds from the written form. He is then taught to produce sequences of sounds which make up words. The child's articulatory production of words precedes any formal attempt to establish recognition of the meaning of words. The child is not expected to recognize and understand any words through reading, lipreading

or hearing until he has first spoken the words himself.

The basic sequence involved in the teaching of new vocabulary or language is as follows:

1. The new language is presented to the child in written form.

2. The child reads it aloud in carefully monitored speech.

3. The meaning of the new unit of language is demonstrated in context through structured lessons.

4. The child is required to use and reproduce the new language in oral and written form in the same context as it was presented in the structured lesson.

5. Situations are created in which the child must use the new language appropriately in more spontaneous, less structured contexts.

Many therapists feel that for the receptive aphasic, emphasis should be given to receptive language (or comprehension) and that when receptive language is established, expressive language will naturally follow. These therapists base their procedures on the principle that the child must first have a meaningful experience and then be given the language for the experience. In such a sequence the child is usually engaged in an activity with the object or act to be named. The teacher then names the object or act verbally in connection with the experience. The child's actual experience is with the *object* to be named; he has no experience with the *symbol* itself other than his chance hearing or lipreading of the teacher's production of it.

Our procedure is to have the child's *verbal expression* of the word precede the association of that word with its particular meaning. Thus he has an experience to which to attach the symbolic meaning, but the experience is with the verbal symbol rather than with the object or act to be designated by the symbol. We feel that what the aphasic child needs is an appreciation of, and experience with verbal symbols, more than experience with the objects and acts for which the symbols stand.

There is one more important point concerning our emphasis on oral expression. When the child is *expressing* verbal symbols orally, he is required to monitor his expression carefully. While *receptive* auditory activity may be primarily *sensory*, carefully monitored verbal expression can result only from an integration of both *sensory* and *motor* capacities, thus involving *receptive* as well as *expressive* experience. Furthermore, the requirement for accurate self-monitoring helps to establish an active auditory feedback, which many feel is lacking in the receptive aphasic child.

VI. *We use a variety of visual cues and devices to aid the child in his memory for and learning of important principles and relationships.* Cursive script is used in order to emphasize visually the continuity and grouping of letters and sounds into word units and at the same time to emphasize the individuality of each word unit. This is especially important, for it is our feeling that one of the basic characteristics of the aphasic child is a poor memory for the connected sequences in language.

Color also provides important visual information. During the child's beginning drills and words, two colors are alternated for each phonetic change. The child soon learns to tell at a glance the number of sounds and the points of phonetic change in the word by observing the alternating colors. This information is particularly important since many sounds are spelled with two or three letters.

Later, when the child no longer needs the information provided by alternating colors within words, particular language forms are emphasized by the use of contrasting colors within sentences. In preposition work the preposition is written in a different color from the rest of the sentence. The same is true of work on verbs and other parts of speech. Verbs continue for some time to be written in a contrasting color, for the verb is subject to frequent change because of tense, person and number. In work on the present progressive or gerund form, the necessity for adding the *ing* to the verb following the *is* is illustrated by writing the *is* and the *ing* in a color different from the rest of the sentence. These are but a few of the visual devices which we feel are important aspects of our teaching procedures.

SUMMARY

I have outlined some of the principles we feel are basic to the procedures we use for teaching aphasic children. I have not attempted to discuss thoroughly the procedures which we use. I have emphasized only those principles which we feel are most essential or basic to our method of teaching, namely:

1. We center our entire program on the teaching of speech and language.

2. Our procedures are organized into highly structured and systematic sequences based upon linguistic complexity.

3. Our procedures are elemental or analytical.

4. There is separate and systematic association of sensory and motor experience through all language modalities.

5. We use expressive activity as the starting or base point in building language.

6. We use a variety of visual cues and devices to aid the child in learning basic linguistic principles and relationships.

The development of language is complex. There is much that is not known about the failure of children to develop the ability to communicate through language. It is not necessary to wait, however, until unequivocal

knowledge is available concerning the nature of the factors underlying disorders of language, in order to proceed with appropriate education.

I have discussed certain principles of a specific approach to teaching speech and language to aphasic children. I do not wish to imply that this method is the ultimate one, or that it cannot evolve into a more suitable approach. Nevertheless, it has for many years been the basis of a successful program for teaching skills of communication to aphasic children.

Experiences With Children Who Failed to Learn to Talk When Taught as Deaf or Hard of Hearing

EDNA K. MONSEES

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My part in this program today is to relate a personal story from my experiences in teaching preschool deaf and hard of hearing children.

During World War II and the years immediately following it, many people, including me, entered the professional field of those working with hearing handicapped children and adults. Many years before the war, of course, it had been known that a large percentage of people designated as deaf have some residual hearing; and the importance of auditory training for maximum use of residual hearing has been demonstrated. Max Goldstein, the founder of Central Institute for the Deaf, with his book *The Acoustic Method*, published in 1939, gave considerable stimulus to the idea of amplification and auditory training for the deaf. But it was not until the war that hearing aids became really good amplifiers of sound and also small enough to be worn on the body. It was this fact that hearing aids were now available to enable deaf children to hear all of their waking hours, not just during the acoustic training periods provided in some schools, that stimulated many of us to work for higher goals for deaf children.

If we could only find the little deaf children early—at two or three years of age at the latest, provide them with hearing aids so they could hear their own speech and that of others, and train them to recognize the speech sounds they were hearing—what a transformation could be made in the outlook for the deaf child! This dream has come true for many hundreds of children.

From my earliest days of teaching hearing handicapped children, I began to have to face the fact that some of the children I taught did not learn to talk as well or as fluently as I had thought they might—in spite of the hearing aids and the intensive auditory training. And in facing this fact, and trying to determine the reason for these failures, several other disturbing, or at least surprising, facts began to emerge.

First, it became evident that the usefulness or trainability of the residual hearing cannot be predicted by the audiogram alone. One child with a hearing loss of 85 and 90 db at 500 and 1000 cps, and no hearing above 1000, developed very good ability to discriminate speech sounds and words by hearing alone. Another child with a similar audiogram was unable to learn to discriminate between the sound of a cowbell and the sound of a horn, much less between speech sounds, after months and months of intensive auditory training. Another child, with a moderate hearing loss of about 45 db throughout the speech range, was also unable to differentiate between gross noises, or between speech sounds or words or phrases, or between different rhythms and melodies. It became evident that there are wide qualitative differences in residual hearing, as shown by the results of auditory training, that are often of more significance than the quantitative differences shown by the audiogram.

A second fact that soon became evident to me was that the amount of residual hearing and even the quality of that hearing does not always predict with any certainty the child's ability to develop satisfactory oral communication. It is generally true, of course, that the children who have the most residual hearing and who are able to develop good auditory discrimination are the ones who achieve the greatest ease in oral communication, but this is by no means always the case. Some children with the most profound losses, as shown by standard audiometry, were able to achieve good speech and language for oral communication. Others, with moderate hearing impairment and good auditory discrimination, were unable to learn to talk by the teaching methods I was using. Of course, all children with hearing defects acquired before the development of speech and severe enough to prevent the development of speech by hearing the speech of others, must be taught to talk. In some cases the auditory deficiency alone is the cause of the failure to develop speech, and this can be compensated for by amplification and good teaching. In other cases, however, these means are not adequate, and it became clear to me that some deaf children suffer from a special language learning disability that cannot be ascribed to the condition of deafness alone. Some children have a

dual handicap, a language learning disability superimposed on the auditory disability.

As I taught preschool deaf and hard of hearing children, I became more and more concerned about those who did not learn to talk, or who learned so slowly that their progress could not be considered satisfactory. There was a larger number of such children than I was willing to accept as inevitable failures, so I began to search for the cause and the remedy. As I studied these communication failures, I saw that some of them had profound hearing losses, and some had moderate or even mild losses. Some had trainable residual hearing and achieved good auditory discrimination; others had to do almost all of their learning with their eyes. The only thing these children seemed to have in common was that they did not learn to lipread and they were not able to remember words even after many months of training. And then another disturbing discovery became evident to me—and this was perhaps the most disturbing of all my discoveries. This was the fact that there is next to nothing in the literature to help the teacher who is trying to teach oral communication to deaf children who do not learn by conventional teaching methods.

In searching for a reason for the failures, I had first to rule out the possibility that I was a poor teacher. So I referred some of them to other more experienced teachers of the deaf, but no improvement could be noted. And most of the children I taught did learn. So I concluded that the problem lay in the nature of the child's handicap, that these children had an extra handicap not common to all deaf children, and that the teaching methods I was using were not suitable for this particular handicap.

Brain injury and aphasia began to suggest themselves, and I decided to find out all I could about these handicaps.

I found that the behavior characteristics of brain-injured and aphasic children as described in the literature did not seem to be those of my non-talking children. The literature generally said that such children are hyperactive, distractible, and disinhibited; that they do not use gestures; that they have all sorts of visual-perception problems, and so on. My group of non-talkers were not so much different in behavior from the children who did learn oral communication rapidly and well. But I went on to explore the suggestions for teaching aphasic children. Here I found the suggestion that aphasic children should be taught just like deaf children, or that the first step is to teach them to integrate their experiences and to understand their environment. My pupils had failed to learn when taught as deaf children, and it was clear to me that they understood their environment and experiences as well as any of the other children.

Then one day, as my search continued, someone suggested that I try the McGinnis Method with one of these children. I had never heard of the McGinnis Method, and upon inquiry, I found that neither had many of my teaching colleagues. So I sought out a number of the Central Institute for the Deaf graduates. All I could find out was that this method is a "sort of phonics" and that "it is really impossible to describe." I learned from the Alexander Graham Bell Association for the Deaf that Miss Mildred A. McGinnis, who is in charge of the department of speech correction at Central Institute, had described her method in her unpublished master's thesis. After spending a week taking notes on her thesis, I went back to work determined to find out if this method, as I understood it, would work with these children who were not learning to talk with the methods I had been using. The results were startling.

There was, for example, five-year-old David. I had been teaching David for about six months, and he had learned only about ten words in this time. One day I made up my mind that I would teach him two words. We worked on *shoe* and *ball*. I would say "This is a shoe. Say 'shoe'." And David would say "shoe." Then I would say, "This is a ball. Say 'ball'." And David would say "ball." Then I would say "Show me the shoe," and David would show me the ball. So we went over and over and over the two words. Finally, after about 45 minutes of this, I thought we had it. David could show me the right one when I asked. He had even progressed to the point where I could pick up one and say, "What is this?" and get the right answer.

Then we both joyously went out for a drink of water. When we came back to gather up our things, I picked up the shoe and asked David to name it. David did not call it a shoe; he did not even call it a ball. He just gave me a blank look. He had forgotten both words! Some months later after I had started using the McGinnis method with David, we were reviewing some words and came to the word *box*, which he had forgotten. He could not remember the word, but then he picked up a pencil, wrote b-o-x, sounded out the letters, and then said "box." Hearing and lipreading and hard work had not enabled him to remember, but the reading and writing of the word, built up sound by sound after a rigid system of drills, had provided the basis for word memory.

Then there was Martin, who was four years old when he first came to us for speech and language training. He had a hearing loss of about 45 db, measured by standard audiometric techniques, and had quickly developed good auditory discrimination for the lesson

material. He had worn a hearing aid continuously since the age of two, and liked it. He had had lessons for a year, and because he had not learned to lipread or to use any words meaningfully, the parents decided to try another teacher. I worked with him for a year and a half, and managed to teach him 12 words. It was a most frustrating experience for all of us—Martin, his parents, and me.

Finally, at age six, Martin entered a special public school class for deaf and hard of hearing children. Surely the reading and writing in the first grade would solve his problem, we thought. From time to time, I got reports that Martin was not making satisfactory progress at school. And last summer while I was in St. Louis taking the CID course in aphasia, I began to wonder whether this method might help Martin. When I returned home, I called his mother and asked her to bring Martin in for re-evaluation of his problem. Martin by that time was nine and a half years old. I found that he could lipread only one question, "What is your name?" His answer "Martin" sounded like "baha," but at least it was an answer. I asked, "How old are you? Where is your mother?" but he could not understand me. I wrote the questions, but he still did not understand. I showed some pictures. He could name a few of them, and could write the names of only a few. In school he had been transferred from one special class to another, and the school officials had recently had a conference with the parents, telling them that Martin could no longer be kept in the school because he was not learning. They suggested that a school for the deaf where Martin could learn the sign language would be the answer. (This is obviously the "out of sight, out of mind" type of referral.) I told the parents of my hope to open a small school for aphasic children and that we would welcome Martin in it. Martin has been in our school since it opened in February—just four months. He now has a vocabulary of about 85 words that he really knows. He can recall the words from the pictures, he can sound out the elements and put them together into words; he can read them and write them. We have covered eight question and answer forms—he can answer all of the questions given orally or in writing in random order, and he can ask the questions.

In the Hearing and Speech Department of Children's Hospital of the District of Columbia, we are now teaching 30 children over four years of age by the McGinnis-CID method, or a modification of this method. Of these 30 children, eight have normal hearing and have been diagnosed as expressive aphasic. The other 22 do not understand spoken language and have some auditory impairment. All but three of the children are making good progress by this method, and almost all of them had made poor progress by other methods. Of the three children who are not doing well with the CID method, two have severe hearing defects and one has normal hearing.

I believe, or at least I want to believe, that all children of average or even somewhat below average, intelligence can learn satisfactory oral communication—whether they be deaf or aphasic or both. The McGinnis-CID method is of major importance in realizing this goal. We at Children's Hospital are hoping to participate in research designed to learn more about these children who do not learn to talk when taught by the usual methods, and to engage in research and experimentation on teaching methods. As we learn more about the nature of both the hearing and the language disabilities, perhaps we shall become better able to adapt the teaching method to the individual child's abilities and disabilities.

Demonstration and analysis of aphasic children by Dr. Kleffner followed the presentation of background information about them by Charlotte B. Avery, Department of Audiology, Eye and Ear Hospital, Pittsburgh.

A subscription to the *Volta Review* entitles subscribers to ten issues of the magazine, monthly except July and August, and to all the privileges of regular membership for one year in the Alexander Graham Bell Association for the Deaf. The subscription-membership fee is $5.00, with an additional 10¢ for postage to foreign countries.

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Language and Reading

Tuesday A.M.
June 24

Chairman: Beatrice Ostern, M.A., Supervising Teacher, Lexington School for the Deaf, New York

A. *Interrelationship of the Language Arts*
Chairman: Dr. Clarence D. O'Connor, Superintendent, Lexington School for the Deaf

Relation of Speech and Language Development to Intelligence and Socio-economic Status

MILDRED C. TEMPLIN

Dr. Templin is professor at the Institute of Child Development and Welfare, University of Minnesota, Minneapolis.

The speech and language which a person develops are dependent upon his own capabilities and the stimulation in his environment. Many characteristics both of the individual and of his environment contribute to this development. Within the individual such things as the adequacy of his hearing, the functioning of his organs of speech — lips, tongue, teeth, vocal cords, etc.—as well as factors such as intelligence are important. Within the environment, the specific language spoken, the amount and quality of the conversation, as well as factors such as socio-economic status are involved in determining the pattern of speech development.

We are concerned with the relation of intelligence and socio-economic status to speech and language development. These are only two of the many factors, intrinsic and extrinsic to the individual, which have been studied in relation to speech and language. They are important factors. However, it should be remembered that they are not the only factors, nor necessarily the most unique factors contributing to the development of speech and language.

There are several considerations which are of some importance in attempting to assess the relation of language development to intelligence and socio-economic status. First, it must be emphasized that "language" and "speech" are terms used to refer to several aspects of language and speech such as production, content and structure. These various aspects of language and speech do not behave as a unit. They are distinct and separate, and can be expected to show varying relationships to intelligence and socio-economic status. The production of language is concerned with how well what a person says can be understood. In the articulation of speech sounds in words, the motor and perceptual components are emphasized. The content of speech or language is more concerned with the experiences an individual has had and with the concepts he has mastered. Here the content, shown in the specific vocabulary used, reflects the individual's conceptual level, and, to some extent, the variety of his experiences. The structure of language is concerned with grammatical usages. These are not only a function of adaptation to the environment, but indicate the growth of understanding of relationships. It is readily evident that each of these aspects of speech and language is dependent to a greater or lesser degree upon certain abilities or experiences. Because this is true, it is necessary to specifically state what aspect of language—whether articulation of speech sounds, vocabulary, sentence length, etc.—is being considered as related to intelligence and socio-economic status.

Another concern is the particular measure of intelligence used in studying the relationship. It is generally accepted that intelligence tests of young children are more reliable toward the end of the preschool years, or after speech has been developed. Many tests of intelligence have a large verbal component. On the other hand, a performance test of intelligence, such as the Goodenough Draw-a-Man Test, the Arthur Performance Scale, the Ontario School Ability Examination, which is relatively free from this verbal component, results in a somewhat different intellectual measure. The type of intelligence test used is probably a more important question when considering the relation of intelligence to speech and language development of those youngsters who have speech problems or handicaps which are likely to result in speech problems than when we are dealing with the development of speech in average children. With speech-handicapped children the use of an inappropriate intelligence test can confound the problem of relationship between intelligence and language performance considerably.

A third concern has to do with the definition of socio-economic status, and more

particularly with the classification into upper and lower socio-economic status levels. In the literature, socio-economic status generally refers to paternal occupation, and it probably makes little difference on what scale paternal occupation is classified. However, upper and lower socio-economic status is used inconsistently, and the question of where the line between the upper and lower groups is drawn is an important one. In some studies blue collar workers are considered in the lower groups and all white collar workers are considered in the upper group. In other studies the division is made on the basis of the amount of training which is required for the job, and then some of the lesser clerical jobs are downgraded and some of the more complex mechanical skills are upgraded. In recent years much work has been done on child training practices in relation to socio-economic status and to social class. Shifts in practices which have been observed to occur over time may be at least partially explained by differences in the classification into upper and lower groups as well as by real shifts in attitudes of the groups. Today, too, there is more frequent use of the social class concept which considers factors other than paternal occupation in the classification. The socio-economic status and the social class concepts have much in common, although they are not identical. It is essential to recognize the differences in evaluating studies using either.

A fourth concern is in the relationship of intelligence and socio-economic status to one another. Scores on most mental tests vary with socio-economic status level, and the attempts to construct tests which are free of this relationship have not been outstandingly successful. The standardization data of the Stanford-Binet Intelligence Test finds that the children whose fathers are engaged in the professions have a mean IQ somewhat above 100, and the children of day laborers have a mean IQ somewhat under 100. Although there is a substantial relationship between IQ and socio-economic status, many studies of language do not separate these two in their analyses. Thus frequently differences in intellectual ability may enter in and contaminate the reports of performance in relation to socio-economic status.

A fifth concern is with the change in the meaning of socio-economic status and, probably to a lesser extent, in language performance. In a recent normative study of language development, it became apparent that performance on several aspects of language varied, while that on other aspects remained relatively constant regardless of whether they were studied in the 20's, the 30's, the 40's or the 50's. The articulation of speech sounds presented an essentially stable picture. However, such measures as the length of sentences, the amount of talking in a child-adult situation showed considerable variation. This means that certain aspects of environmental stimulation have a differential effect on certain aspects of language and that some of these have shifted.

It has long been recognized that language development is most accelerated when more adult language appears in the child's environment. This generalization is based on the repeated finding that only and oldest children's language development is more accelerated than that of younger siblings, than that of twins or triplets, or than that of children raised in institutions. Most children today probably hear a lot more adult speech in their environment than children did before the days of radio and television. It is also likely that the current greater permissiveness and the encouragement of children to express themselves is reflected in their talking more in child-adult situations.

The distribution of socio-economic status levels has shown considerable shift over the past 30 years. What has happened on the Minnesota Paternal Occupational Scale, which is divided in seven occupational categories, can serve as an example. Applying these categories to the United States census reports between 1920 and 1950, it is found that in the United States there is an increase of nearly 1% of persons in the professional level, about 4% at the semi-professional level, about 7% at the clerical, skilled trades and retail business level; a decrease of at least 50% in the farmers; relatively little change in the proportion of semi-skilled workers; an increase of approximately 7% in slightly skilled workers and a decrease of about 50% in day laborers. This is merely a reflection of the greater occupational skill in our society, but it does make a difference when old and new studies are compared.

Many of the studies report results in terms of statistical significance. If something is reported as significant at the .01 level of confidence, this merely means that if the study were repeated 100 times, the results would be in the same direction (but not necessarily to the same degree) in 99 out of 100 times. It should be pointed out, however, that there is a real difference between statistical and psychological significance. Psychological significance is concerned with how meaningful the results are in a particular situation. Statistical significance and psychological significance may, but do not necessarily, vary together. For example, the occurrence of some characteristic in 9% of a group of girls and 12% of a group of boys has been reported as a statistically significant difference. This difference, however, would probably be of little psychological significance in determining a pattern of dealing with boys and girls. On

the other hand, a test of infant development designed for use by visiting nurses may be psychologically significant because of improved performance over that without the test, although the test may not be statistically significant at even the 5% level of confidence.

Many aspects of language are related in some degree to intelligence. Often the relationship is more apparent when one can look backward at what has happened, rather than forward to predict what will occur. For example, if a group of gifted children and a group of dull children are compared at about ten years of age, both statistical and psychological differences will likely be found in such aspects of speech and language as the age at which they began to talk, the length and complexity of their present sentences, the adequacy of articulation, the size of vocabulary. On the other hand, as these youngsters are developing there is likely to be so much variation among them that some of the gifted will be behind some of the mentally retarded on these same measures. Considering the age of beginning to talk, we know that idiots almost never learn to talk; that, depending upon the degree of feeble-mindedness, initial speech may be retarded for several years; and that Terman reports the average gifted child talking about four months earlier than the average normal child. Intelligence is an important factor in the early use of words, but the fact that a child is not talking at an early age does not necessarily indicate lack of mental ability.

Recently I studied the language performance of 480 children between the ages of three and eight. Sixty children were at each half-year level between three and five and at each year level between five and eight years. There were an equal number of boys and girls, and the youngsters were selected to form a representative sample according to their fathers' socio-economic status. These children were given an articulation test, a sound discrimination test, several vocabulary measures and 50 remarks were obtained from each. The relation of these measures to intelligence varied, not only according to the language variable measured, but in many instances varied at the different ages for the variables. Only the relationship between intelligence and vocabulary was substantial and was maintained throughout the age span of three to eight. This is in keeping with other studies. The correlations reported were around .6. While this is considerably lower than the correlation of more than .8 which Terman reported in the 1930's between the Binet vocabulary and the Binet IQ, it is of considerable magnitude. The relationship between intelligence and the other aspects of language measured, however, were all somewhat lower than with vocabulary and varied at the several ages considered. The correlations between intelligence and articulation, while lower than with vocabulary, were around .4, but dropped at the ages when mature articulation is achieved by most children. The relationship between intelligence and both length and complexity of spoken remarks varies not only with age, but with the situation in which the speech sample studied was obtained. In the child-adult situation the relationship was substantial (r's varied from .4 to .6) at the preschool level, but dropped considerably at the school ages. This is probably due to the fact that the length of the remark was somewhat limited by the test situation. The complexity of the remark, sometimes more specifically studied in appropriate use of subordination, fluctuates with the opportunity for use of elaborated sentences in the situation in which speech samples are obtained.

Study after study seems to agree that a marked relationship exists between the socio-economic status level of a child and his language development. McCarthy in her summary of research in language development cites such a reference published in 1847, and this early observation has been substantiated by many studies since. Orvis Irwin in studying the articulation of young children, reports some relation in the frequency of use of certain sounds after about a year and a half.

In the study which I conducted and previously referred to, consistent differences in the performance of the upper and lower socio-economic status groups were found. The upper group received higher scores quite consistently at each age level for all language measures. Of a possible 230 comparisons that were made, the lower socio-economic groups received a higher score in only 13 instances. In a little over a quarter of the comparisons, the scores of the upper socio-economic groups were significantly higher at the .05 level. The differences were found throughout the age range, and in a variety of language areas. They are particularly concentrated in the articulation of vowels and final consonants, the grammatical complexity of remarks, the vocabulary of recognition at the school ages, and in the length of remark at the younger ages. These relationships are greater than those found with intelligence and much greater than the differences between boys and girls. It must be pointed out, however, that in this study, as in many others, intelligence was not consistently separated from socio-economic status level in the analysis.

Now what does all this mean? Studies indicate that a child will show differences in the pattern of language development both according to his intellectual ability and to the socio-economic status level of his parents. However, since good speech and language is found

in three- and four-year-old normal children and in children from all socio-economic status levels, information on a child's intelligence and his father's occupation is not sufficient to predict with any accuracy how the particular child will speak.

Intelligence as an intrinsic factor is important in determining language development. Socio-economic status as an extrinsic factor is probably too broad a category. It brings with it intellectual level, amount of education, certain attitudes, etc. We need to develop more specific dimensions of environmental stimulation to be used in study.

We must recognize that the trend in our society is toward a commonality of experience for children. This means that the differences between experiences likely to occur in homes of varying socio-economic status levels is probably less today than reported some years ago. This has been found to be true in the information of children. Children of the upper and lower socio-economic status groups in kindergarten today differ less in what they know of the world about them than they did 25 years ago. The impact of increased travel, television and other mass media is becoming evident in the greater similarity of experiences of today's children, and I believe, is being reflected in their language behavior.

Speech and language grow out of individual capabilities and environmental experiences. Intellectual capacity is basic, but most preschool children can use words meaningfully. Socio-economic status levels indicate, broadly, the background which may tend to foster or discourage the development of certain language skills. These, however, are only two of the many factors which are important in determining the kind of language a child develops. They should not be overlooked. Neither should they be overemphasized so that the principle of multiple causation in speech and language development becomes unrecognized.

The Interrelationship Between Language and Reading

RUTH G. STRICKLAND

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A short time ago, in a workshop in Tulsa, Oklahoma, I asked the teachers of the deaf in the Tulsa schools what I, who do not know how to teach deaf children, might say to you about the relationship of language to reading which would be of service to you. Their suggestion was that, since you will wish to help your children develop as nearly as possible as normal children develop, I should talk to you as I would to teachers of children who can hear, and let you make your own applications to your teaching problems.

Communication, as we all know, is achieved through an interwoven pattern of skills. For the majority of us, messages flow into and out of our minds continuously through the medium of words. We accomplish communication through four methods—listening, speaking, reading and writing. Two of these, listening and reading, are intake methods and the other two, speaking and writing, are the expression media.

Intake, of course, comes first. But a baby learns to read before he learns to listen. A mother communicates her feelings and her reactions without words. The baby's reaction clearly indicates his interpretation. When his mother is tense or disturbed, or when her voice is sharp and irritable he responds in one way. When she is relaxed and smiling, her voice is soothing, and she utters loving, soothing sounds he reacts in another way. Obviously, the baby learns that his mother loves him, not because she says the sounds, "I love you," but through the feel of her hands—gentle, yet firm and dependable. Communication, with or without language, is the basic means of education.

The child learns his culture as he learns his language. His concepts of himself, of others, of life on the earth, of man's relationships with man are all well under way before he comes to school. Some of what the child has learned has come through words, though a large part of it has been learned through his interpretation of the actions and attitudes of those about him. Language-wise, and in every other way, he is a fortunate child if he has learned to have faith in others and faith in himself. Such faith is the soil in which learning expands in school and outside it.

Environment and experience, not native intelligence, determine the quality and quantity of language the child brings to school. A child with an impoverished background will lack well-developed concepts. And the process of catching up must not be delayed too long. The damage inherent in impoverishment is cumulative and may prove psychologically crippling.

For all normal children, listening is a major avenue for learning. Teachers are only now waking up to the realization that listening, hearing and "paying attention" are not synonymous. Listening is a mental process, and it can be improved through teaching.

Listening and reading have much in common. Both require certain types of simultaneous response. First, the listener or the reader must recognize the symbols, whether they are black marks on a page or white

marks on a chalkboard. Next, he must put meaning into them because the meaning resides in the mind of the listener or reader, not in the symbols themselves. Then he must react to the meaning—bring his experience to bear on it. He paints his own mental pictures and reacts emotionally and intellectually to the concepts he has brought up from his own past experience. That experience, and that only, is the material with which he must work. He is in very truth the center of his own universe and can react only with what is within him and what he perceives as he looks out from that center of focus.

Last of all, he must throw what he is listening to or reading into perspective. Not all of the symbols are of equal value. Some of the word symbols carry the weight of meaning and others are merely glue or filler with which the sentences are welded together. Most important of all, he must throw the material into perspective and push up peaks of meaning. If the content is something he wishes to remember, he must integrate it into himself.

Listening and talking are important parts of every child's school day. Teachers and children try to provide time and encouragement for free sharing and spontaneous free talk. They set aside time for planning, for discussion, for reporting, and for evaluating both the processes they are utilizing and the end result. In sharing individual interests, each child assumes responsibility for the content of his contribution and for getting it across to others. He is free to say what he wishes, provided he does not monopolize the time and can hold the attention of his audience. Planning and evaluating call for disciplined listening and disciplined talk. One must listen to other people's ideas, react to them, weigh them and arrive at a value judgment.

Children need many kinds of talk and a great deal of it to learn to speak easily, clearly and in a manner suitable to the situation. Oral language plays a far larger role in the modern school than in the older school, both because this is an era in which spoken language is very important as a result of mass media; and because so much of the work in family and neighborhood, as well as in the nation and the entire world, is accomplished through oral communication.

Listening, whether one does it through his eyes or his ears, is a mental process. Not until a child can listen, put meaning into what he hears, react to it and throw it into some sort of meaningful perspective is he ready to apply the same sort of processes to reading. Mind must reach out to meet mind, there must be some sort of entering into the thinking of others, and reacting to it. Reaction through listening may be mainly appreciation, the making of friendly contact, the acquiring of knowledge, or it may be mainly analytical or even negatively critical. At any rate, there must be mental reaction. Real reading calls for these same types of mental reaction.

Primary grade teachers are being urged nowadays to recognize the problems beginners face as they encounter printed words. Books for beginning readers all follow a very similar pattern. Practically all beginning stories in preprimers deal with the same constellation of characters—a family consisting of a father, a mother, a boy and a girl, a baby, a cat and a dog. The setting pictured in all such books is a good middle class home in a good middle class neighborhood. Father is a businessmen and mother a homemaker. The children are all well-clothed and have an abundance of toys and pets. The experience pictures of many beginners are far different from these.

A Tulsa teacher of the deaf asked what might be a good series of readers for deaf children. For any child, the best beginning material would seem to be material which intimately touches his own life experience so that he can see his experience in symbol form and identify himself in and with it. That is the reason many teachers of beginners prefer to begin the teaching of reading with simple experience stories composed by the children. Vocabulary may be less rigidly controlled in these little accounts, but the sentences are those children use when they talk. This, in itself, may be easier for some children than the choppy and unnatural sentences that appear in most preprimers. The notion current in the literature in England on teaching of reading, and in many of the English schools it was my privilege to visit, was that every child should make at least one book of his own before he was given a printed book. The children drew the pictures they wanted in their little booklets, told the teacher the content they wished written down, and the teacher either wrote it on the pages beside the pictures or wrote it on slips of paper for children to copy. Whether there is anything in this plan that could be adapted to the teaching of deaf children, I do not know.

It appears true, in studying the problem of reading in the elementary school, that a child will read no better than he talks. If we wish children to read fluently we must help them to learn to talk freely and easily. It seems clear that a child cannot read sentences that are much more mature than the sentences he can think and talk. If a child speaks only in monosyllables or in fragments of sentences he will find it very difficult to blend the words in a complex or compound sentence into a clear unit of meaning. The word-by-word meaningless reading of many slow-learning children appears to be evidence of this fact. After children have learned to

read for meaning, the material they can read can gradually be extended beyond the level of free, easy talk but this stage, with most children, comes later. If we can help a child grow and mature in the quality of his speech, we also help him to expand his potential reading power.

In oral communication, mind reaches out to meet mind—both communicators are active. The physical setting in which talk takes place, the objects at hand, the facial expression, gestures and bodily attitude of the speaker may all help to make clear his meaning. Reading is different The reader must conjure up his own pictures. He must develop his own interpretation of the meaning, mood and response the author attempted to evoke. There are only cold, impersonal marks on a page to stimulate him.

Oral reading places on the reader an additional burden of responsibility. He must see and understand clearly the meaning of what he is reading because he assumes the responsibility of interpreting it to others. Unless it is meaningful to him, he will not be able to get the meaning across to his listeners. Poor oral reading usually means one of two things —either the material is couched in sentences that are too involved for the reader to handle smoothly because of his inexperience with such sentences, or the meaning is not clear to him—or both.

Normal children need help with all reading matter that contains new or unfamiliar content. In social studies and science they need the teacher's help to attach the correct meanings to words and to make the content come alive. They cannot do it for themselves. This means much working together to build associations, to make comparisons, to clarify mental pictures, and to relate what they are reading to their own lives and experience. The sorting out of significant and essential meanings from the mass of detail and supporting evidence is something they cannot do for themselves until they have had a great deal of teacher guidance. Reading and discussion must go hand in hand until children learn to put content into perspective.

The goal of all teaching of reading is to make readers of children, remembering that *a reader is a person who reads*, not merely a person who *can* read. Consequently, teachers strive to make all types of material available so that each child may choose that which suits his own interests and tastes and furthers his own purposes. There is a great deal of emphasis at present on individualized reading, permitting each child to select the material he wishes to read and helping him to improve his reading skill through reading material that is of special interest to him. Undoubtedly, that has always been an emphasis in your work. Reading textbooks alone will not make a reader of a child. He must do much more reading than that. Obviously, he will read more and do better reading if the material he reads is something he cares about, not merely something he is required to read.

What a child writes grows out of his experience, his talking and his reading. Over and over in the literature I brought back from England and in my contacts with school leaders over there the same refrain appeared. If a child's reading is poor, look to his oral language. If his writing is poor, look to his oral language. And behind that is the problem of looking into the matter of his experience with concept building and the quality of his perception.

The child who is growing in confidence and in a sense of his own worth will reach out for new experience and will find pleasure in sharing that experience with other minds. All aspects of his language growth are dependent in large measure on his self-concept.

I frequently tell my students that each new experience has something in it for each individual. He may listen, and come away feeling that he has gained something new. He may feel that he has more to offer than the person to whom he has listened. Or he may be made to feel comfortably on the right track because what he has listened to is in agreement with his own thinking and ideals. Your work requires skills I do not possess. The best I can hope for is that we find ourselves in agreement on what we want for children, and that we can all grow in insight and understanding of paths that lead to those goals.

A discussion followed by Dr. Helen S. Lane and Dr. Mary R. Costello, audiologist, Henry Ford Hospital, Detroit.

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A Developmental Curriculum

SISTER ANNE BERNADINE, C.S.J.

Sister Anne Bernadine teaches at St. Joseph's Institute for the Deaf, St. Louis.

"A Developmental Curriculum" is quite an imposing title, isn't it? We are going to develop reading. How can we do that? In order to develop anything, we must know, first of all, what the thing is. What is reading? Books on the subject tell us that reading is a basic tool of learning. Learning to read is a gradual process of learning to interpret. Interpret what? In the beginning stages the very young child begins to interpret pictures. Small children like "lots and lots of pictures and lots and lots of color." A small child who is deaf will enjoy the ABC books just like his hearing brother will. The pictures are large and colorful and he will be interested to know what they are and what to do with them. Next we find books with pictures and some words, not too many words as yet, but the same words repeated many, many times. Later we find fewer pictures and many words. Fewer pictures because the child is learning to interpret the printed word.

Growth in reading should be as sequential and as continuous as growth in the ability to talk, to walk, to think, or in any other area of development. That is the reason for the Reading Readiness Program—a very carefully worked out plan to help children learn to read.

Adjusting to school is part of this program. You, no doubt, have seen children come to school, and on the very first day seem to know what it is all about. Why is this? The parents have talked to that child; have explained that he will be with other children; that mother will not be there; that he is going to make new friends and that he is going to like school—and he does.

Wanting to read is also part of the readiness program. It is sometimes surprising to see how soon a child learns that he can convey meaning by the use of the printed word. One of our little three-year-olds had a grievance against one of his classmates. This little fellow went to the principal's office, brought her to the classroom, went over to a chart that contained the names of the members of his class, picked out the name of the offender and then showed Sister that the child who owned that name had pushed him. Satisfied with having conveyed that message he stood and waited to see that justice was administered.

Learning to listen carefully (in the case of a child who is deaf, he listens with his eyes) is also a part of the program. When Sister reads a nursery rhyme, and she purposely makes a mistake—Little Miss Muffet sat on a pillow, there is a general uproar—Sister made a mistake. Little Miss Muffet did not sit on a pillow.

Learning to remember is part of readiness also. The "What am I" game is lots of fun and the children while they are playing are remembering, they are getting a mental picture of the little creature with long ears and a fluffy tail that goes hop, hop, hop.

Learning to interpret pictures is also important. Whom do you see in the picture? What are they doing? Why are they doing it? What do you think will happen next? These are all a preparation for reading.

Increasing a child's vocabulary is very necessary and can be done almost painlessly. Trips to a bakery, the fire-engine house, a farm all present wonderful opportunities for enlarging a vocabulary. After the trip the children discuss what they saw. Sister writes about it on the blackboard or on a chart, and the children enjoy reading about it, not once, but many times. Anyone the children encounter in the halls or a visitor to the classroom is almost certain to get a play-by-play account of what happened on the trip.

Some children have had more varied experiences than others before they come to school. All of these activities either help children gain a background or broaden the existing background of experiences and ideas that they will need if they are later to read and understand the printed page.

At St. Joseph's we encourage the parents to visit the classrooms, to come and see what their child is learning, in order to help him when he is not in school. It is gratifying to see how some of the parents cooperate after one of these visits. Our smaller children come to school each morning with "news"—something that has happened since the time they left school the previous afternoon. For these little people the "news" is sometimes two, sometimes three, or perhaps four sentences; and very often the principles that the parents saw taught or reviewed are woven into the simple little language. Children who live out of town get cards using what the parents know is being taught in school, and it is a real delight to watch these tiny individuals read their mail and understand everything that is on the card or in their letters. Nor are they satisfied just to read and enjoy it themselves. Everyone in the class is made

aware of the fact that, "Mother bought a new lamp. She put it beside the sofa." Everybody understands that. It has been taught in school when they played with all the furniture and were unconsciously learning prepositional phrases. Or perhaps, "Jimmie did not help daddy cut the grass because he is too small." That sensory image is very clear because the children have had so many similar images when Sister showed them pictures and they figured out why those different things had happened. From the pictures—stacks and stacks of them—they advance to books, the preprimers. Sister has gone through the books, picked out the nouns, verbs, adjectives and prepositions and put them on cards. I do not mean merely the 17 words listed in the book, but I mean all the nouns, verbs and prepositions used in the book—to be exact, 68 in all. Sister has also made meaningful scrolls about the pictures in the books. First of all, she checks to make sure that the children understand all the vocabulary. When she flashes the card that says *Jane* the children have no difficulty at all finding the little girl in the book.

Perhaps the next word flashed is *umbrella*. They understand that also and can find the picture that shows the umbrella. After a check-up such as this, Sister next presents the scroll *Dick climbed the tree*. Everybody in the class is interested and they rapidly turn the pages to find the picture that shows Dick climbing up the tree. Perhaps the next scroll is *Judy pulled the wagon*. Immediately everybody is busy finding the picture showing Judy happily pulling the little wagon. After the children finish one preprimer and can prove that they understand what the book contains, they take their next step. Instead of putting the sentences on scrolls, Sister types them and pastes them over the sentences already in the book. You, no doubt, are wondering why this is done. If you are familiar with the preprimer, you know that the vocabulary is mostly, stop, come, look, go, help and the names of the characters in the stories. When Sister types the sentences for the book, she uses the vocabulary that the children know and have been using. To illustrate: on page four of the second preprimer we find, "Work, John. Work, work." In order to use the vocabulary that the children know, Sister typed and pasted the sentences:

John put the newspaper on the floor.
John put the chair on the newspaper.
John painted the chair red.
John did not get paint on the floor.

On page nine of the same book we find: "Oh, John. Oh, Jean. See, see. Judy can work." Again using the vocabulary the children know, Sister typed and pasted the sentences:

John opened the door.
Jean said, "The bedroom is clean."
Judy said, "I am finished."
Spot looked under the bed.

Perhaps you are thinking, "That's work." You are right, it is, but it pays big dividends. When the children are ready for the primer, the groundwork has been laid and they are ready to read and understand it. The first-, second- and third-grade readers are presented as the children advance in school and are ready to understand them. They are able to read two and sometimes three readers per grade depending on the class.

When a child reaches the fourth grade, he enters the rotating department. Here the child's day is divided into half-hour class periods, one-half hour for each subject. It would be wonderful if each child progressed at the same pace. This, we know, is not the case. Children learn to read at different rates and they also have different tastes in reading. You may have one child who reads everything and anything. He even reads the encyclopedia and comes to school bursting to tell the others some startling information he has gathered from that source. Another child may delight in biographies. She has read and reread everyone she could put her hands on. What the great men and women of our country did when they were small, simply fascinates her. You may have a child who, while he actually has no difficulty with reading, would never, if the choice be left to him, take a book and read. Then you have the child who likes reading, but a third-grade level is his capacity. And last, but by no means least, you have the child who just *does not read*—he gets nothing from the printed page. You may have all these in the same class, and the question is what are you going to do about it? You want to do the best you can for each child.

Let's begin with the boy who is reading the encyclopedia. He needs to be kept interested. Put your library books to work. Suggest those that are more difficult. After he finishes the book, give him some questions on the story and see if he can answer them. If he can, fine. Try something a little more difficult. Keep him thinking. The child who has no trouble with reading, but reads only because there is nothing more interesting to do, can be encouraged to develop a hobby—for example, stamp collecting. In order to make a success of it, he will want to know all he can about different stamps. You may, at the beginning, have to ask him questions about commemorative stamps or foreign stamps. He will not know the answer, but you can show him where he can get the information on the subject. He will, no doubt, discover that a wealth of knowledge can be acquired by reading.

The child who reads at a third-grade level needs encouragement also. Books below a third-grade level can be put into his hands. He need not know what level they are. After he finishes a story, give him a set of questions—questions you are sure he can answer. In that way he will taste success and be encouraged to keep on reading. He is bound to improve. I say "improve"—I do not mean that he will advance by leaps and bounds, but his vocabulary is going to expand, he is going to meet new expressions, he will learn that other children have the same experiences he has.

Then we have the child who simply *does not read*. In a case like this it is well to look into the child's physical well-being. A child who is not well physically will have little or no energy for learning. Perhaps the child has a visual defect. What about his emotional problems? Does he fear making a mistake? Does he have parents who "make" him read at home, and as a result does he have a dread or a definite dislike for reading? What about the language background? Is there a foreign language spoken in the home? Has he had any experience with nursery rhymes or bedtime stories? A child needs experiences in order to make reading understandable. Learning has to be personal if it is to be used. If we can get a child to feel himself intimately involved in what he is reading—if he can see, hear, taste, touch and smell the things that are happening on that printed page, if for a time he is living right there with the characters in that story, then we will have no trouble enticing that child to read. A poor reader is not always an indication of a stupid child. He may have an average or perhaps a high IQ. He may do very well in the mechanics of arithmetic and in activities where no reading is involved. What can the teacher do in a case like this? She has to try all sorts of ways and means to help that child reach his potentialities. How can she do this? The teachers' manuals that accompany the text books are filled to overflowing with excellent ideas for developing reading. Comprehending sentence meaning is important if children are to understand what is on the printed page. Before reading the story we find it very helpful to pick out the words and the figurative, idiomatic and picturesque expressions that the children do not know and which they will encounter in the story. The sentence, "She let the cat out of the bag," may produce a sensory image which is not at all in accordance with the story. What sensory images are produced when a child reads:

Her heart seemed light as a feather.
We're in hot water.
She could not find her tongue.
The morning wore on forever.
You're in on this with me.
A good conscience makes a soft pillow.

It is interesting to put these sentences on scrolls and let the class tell you what they mean. Then it's your job to teach them, give them the correct sensory images and call their attention to the emotional tones in these expressions.

We must also make the children aware of the fact that the same word may have several meanings, depending on the context. For example, the word *take*. I'm sure you have all met sentences like the following:

Abe Lincoln *took off* to the woods.
Aunt Polly *took after* Tom.
The children love to watch a DC-4 *take off*.
She *took in* every inch of the beautiful scenery.
He was sorry he *took up* so much time.

The same word in different senses and with different prepositions, but oh, the variations in meaning. When a child reads sentences like these and is able to understand them, he is living the story.

When we feel that the children have mastered the expressions and the new words, we talk about the setting or background of the story. If possible, we locate the places on the map and correlate any history or geography that the children have been taught about this particular location. It has happened that one or another of the children has visited some of the places mentioned and was able to add some interesting information about it. After the background has been established the teacher reads the story aloud so that the children will receive the voice of a hearing person as it reaches them through the hearing aid. The children may ask questions at any time. The class discussion that follows the reading of the story varies greatly according to the type of story. The teacher may make true and false statements. The children decide whether or not the statement is true or false and prove the statement by quoting from the text. The teacher may use completion sentences—giving part of a sentence and the children supplying the remainder. To increase or review the children's vocabulary the teacher may say: "Turn to page —— and find two words that mean *large*. On page —— find a word that means the opposite of *easy*. On page —— find a word that has a prefix meaning *not:* a suffix meaning *without*. Turn to page —— and find words that mean *talked in a loud voice*." After you have finished several stories in a unit or an entire unit, go back and find all the words that mean *said*. You will find that your list will look something like this: complained, chattered, bellowed, apologized, announced, admonished, roared, remarked, raged, questioned, protested,

pleaded, urged, stammered, drawled, grumbled, etc.

Or you could take the word *house*. See how many words you can find that designate a place in which to live. Here are a few: bungalow, flat, palace, motel, hotel, apartment, duplex, igloo, tent, hut, cave, tepee, cabin, inn, tenement, hogan, cottage, shack, etc. How many words can you find that give you the idea of *walk?* Tiptoed, sneaked, stalked, swaggered, tripped, strolled, ambled, meandered, raced, darted, trotted, tramped, limped, shuffled, sauntered, sprinted, staggered, streaked, stumbled, tottered, trudged, hurried, hastened, hustled, crept, dashed, and many others can be found in the readers. Many of these verbs just automatically suggest definite adverbs—trudged wearily; crept silently, slyly or stealthily; swaggered proudly; dashed madly. You can also find verbs that very definitely designate a loud or a soft noise. Take the words twinkle, pitter-patter, slam, click, rumble, squeak, flash. Ask the children what nouns come into their minds when you say these verbs: stars twinkle; rain pitter-patters; doors slam; locks click; thunder rumbles. Children like drills such as these and it has happened that they will continue to look for verbs, adverbs and nouns and bring them to class. That keeps their vocabularies growing.

The teacher may also pick out the important happenings of the story, put them on scrolls, mix them up and have the children arrange them in sequence. She may also write three or four summaries of the story; have the children read them and decide which of the three is best, giving reasons for their choice.

As teachers, we all want reading to be an experience that will enrich a child's life now as well as later on. If a child can put himself in place of the character in the story, if he can understand what that character is doing and why he is doing it, he is really living the story. The seventh grade had just finished reading the story "Jason, the Slave." It was a story of two boys—Marcus, a freeman, and Jason, a slave. As the story unfolded the children learned that Jason had a very great disappointment. He was led to believe that he would be able to take part in the public games and win his freedom, only to learn, a very short time before the games, that slaves were not allowed to participate. A fight between the two boys ensued and Jason, with hate burning in his heart, was sent to work in the mines. There he met a disciple of Christ who taught him to love all men. This was a hard doctrine for Jason to understand, feeling as he did. Not long afterward Jason saved Marcus from drowning. In order to right the previous wrong done Jason, the governor gave him his freedom and an opportunity to take part in the games.

In the discussion that followed, it was evident that the children lived the story. In answer to the question, "Which of the two boys would you like to have for a friend?" the answer was unanimous, Jason. When asked "why" these were some of the answers:

> He was kind to someone who had been unkind to him.
>
> He forgave the injury.
>
> He was a strong character because it was not easy to do something nice for someone who was mean to you.

They had definitely been with the two boys in that story.

Our fourth-graders read a story about Tom, a little boy, who brought a bouquet of flowers that he himself had grown, to an invalid lady. The lady was quite overcome by Tom's thoughtfulness and generosity and wanted to give him some cookies as a reward. When she discovered that she had no cookies, Tom was not the least bit disturbed. He explained that he liked to do things to make other people happy and did not want a reward. Several days later Sister asked one of the boys in that class to help her carry several packages. When the job was completed Sister wanted to give him some candy, but he politely refused, saying that he was not looking for a reward. He was like Tom. He liked doing things to make other people happy. That story had become part of his everyday life. It was also affecting his personality. He was learning that it made you feel good inside when you helped somebody else. Little did he realize that he also made his teachers feel real good inside because he had given definite proof that he was using the help he had gotten in order to understand the story.

Reading, therefore, is much, much more than merely pronouncing words correctly. Reading calls for all the thinking powers a child has at his command. He has to be able to interpret, to note details, to form sensory images, to make deductions and to anticipate outcomes. As teachers we should guide and encourage children along these lines. How? Consult the teachers' manuals that accompany our text, don't forget the workbooks, use our own experience and ingenuity and as one of our very successful teachers and at one time supervisor of our schools said: "With the help of God and your own smartness you will be able to make your pupils intelligent young Americans who will be able to read and enjoy the printed page."

Improving the Reading Ability of Deaf Children

MARGARET H. FITZGERALD

Miss Fitzgerald is principal of the St. Mel-Holy Ghost Day School for the Deaf, Chicago.

In the presentation of my topic, "Improving the Reading Ability of Deaf Children," two phases of the subject will be considered: first, some of the skills and habits involved in reading, particularly those in which deaf children, because of their language handicap, need special assistance; and, second, some suggestions as to how these skills and habits may be improved in order to raise the general reading ability of these children.

We know the importance of reading in this modern age. Dr. Artley says, "The person who cannot read is frustrated at almost all levels. We depend upon reading for our jobs, our information, and our pleasure. We literally read to live."[1] This first-place importance of reading makes it the key to progress for deaf children in particular, because of their handicap in speech and language.

In addition to recognizing this emphasis on reading, we teachers of the deaf must observe carefully the factors that enter into the successful teaching of reading, the first of which is reading readiness. The modern concept of readiness is that it includes a combination of mental, physical, social and psychological factors. These conditions apply to deaf children as well as to those having normal hearing, but with particular provision in the case of the deaf for the necessary language experience to be supplied.

Readiness for reading may be evaluated through the use of intelligence or general ability tests, reading readiness tests, and, especially through the teacher's careful observation of a child's behavior in various situations throughout the day. We look particularly for evidences of general maturity and the degree to which the child exhibits the ability to *listen;* that is, to give his undivided attention to something for a reasonable span of time. We observe, also, whether he is learning to *look* carefully, and how well he is learning to remember. These are some of the characteristics that are basic to the development of sentence and paragraph comprehension.

While readiness for reading is stressed in preparation for beginning reading, it is a requisite at all school levels. There should be a proper relation between the complexity of the reading material and the ability and experience of the pupil. To have deaf children "reading" material greatly beyond their comprehension is not only a waste of time, but it is undoubtedly detrimental to them by giving them a false idea of what reading is.

The modern concept of reading is that it is a process involving four steps which, while distinct in themselves, are fused into the complete act of reading. Gray designates reading as a four-step process and gives the four steps as perception, comprehension, reaction and integration.[2] Other authorities may use slightly different terminology, but there is general agreement upon the factors that make reading an experience.

An analysis of these four steps to see what each involves will help reveal the particular areas of difficulty for deaf children, and upon that basis remedial measures may be determined.

The first step, perception, consisting of word recognition and word meaning, presents a great problem to children who are acoustically handicapped because they lack the large hearing and speaking vocabulary possessed by children who hear. Consequently, the development of vocabulary becomes a first requisite at all levels. The study of words should go on every part of the day in every activity in a vital, stimulating way.[3] Meanings for new words should be made clear with "direct experience as the starting point."[4] Concepts should be made definite through demonstration and action, with full participation by the pupils, and the multiple sensory approach should be employed.

There are other factors in the development of vocabulary, among which are association of new words with known words; the grouping and arrangement of new vocabulary in some kind of meaningful and useful arrangement that will provide for accessible reference. Frequent review should be provided for the pupils, and new words should be used often by the teacher herself. Supplying patterns in the use of words by the teacher is a definite part of the process of teaching vocabulary—a phase which is probably one of the most important.

The little child is usually ready to begin to read sentences when he understands *who* and *what, how many,* and *what color,* and knows a few verbs in lipreading. He learns to read the simple sentences that he acquires

1. Artley, G. S., *Your Child Learns to Read.* Chicago: Scott, Foresman and Co., 1953, p. 3.

2. Gray, W. S., *On Their Own in Reading.* Chicago: Scott, Foresman and Co., 1948, p. 35.

3. Fitzgerald, M. H., "Vocabulary Development of Acoustically Handicapped Children," *American Annals of the Deaf,* Vol. 94, No. 5, Nov. 1949.

4. Artley, *ibid,* p. 121.

in his language development. All of his first language and reading is, of course, experiential. Little stories of "news" and activities are written on the blackboard and on charts. Illustrations should be made by the teacher or pupils.

The matter of sentence comprehension is a crucial one in beginning reading, for the child must not only know the meaning of each word in the sentence, but he is confronted with a far more complex problem—that of grasping the meaning of the whole sentence. He must recognize the relation of the subject of the sentence, the doer, to the action expressed by the verb, and the further relation to the object or whatever the remaining component part or parts may be. Although the pupil may know the meaning of the words in the sentence individually, he must put them together synthetically to form a unit of thought. If he fails to do this, he may get the impression that calling words is reading—a situation that requires immediate treatment. If the child is having difficulty in reading sentences in experience stories, the problem is undoubtedly one of language readiness. While the language used in reading material may be beyond what the child is able to use, it should not be beyond what he is able to understand.

As children progress from reading about their own experiences to reading in books, they have other things than language to learn. First, they must make the transition from reading about experiences in which they themselves participated or which they witnessed to those of imaginative or fictitious characters in a book. They will also find factors within the structure of sentences which impede comprehension. For example—the relation of pronouns to their antecedents; the inverted order in sentences; the meanings carried in potential auxiliaries (may go, might go, could not go, would not go, etc.); and the complexity of ideas expressed in conditional clauses—all are points that require careful development. The function of the verb in a sentence also needs to be understood.

The importance of the verb as the *heart* of the sentence cannot be overemphasized from the beginning. The verb is the word that tells *what happens* to the person or thing named in the subject, and is usually the key to understanding the unit of thought in a sentence. An experience with Carl, who seemed unable to grasp the total meaning of a sentence, may be cited as one out of many instances showing the effectiveness of placing emphasis on the verb. Carl had read, both silently and orally, the sentence, "John has a blue boat." When asked to show it in the picture in the book, Carl pointed to the boat, *boat* being the last word in the sentence. When his attention was directed to the verb *has* he gave evidence that he then knew the sentence was about John's ownership of the boat, rather than the simple object—the boat. Later, Carl read the sentence, "The doll fell out of the boat," and pointed to the boat in the picture—again interpreting only the last word in the sentence. He was next asked to point out the verb, and, with his awareness of the verb *fell*, the light came. Once more stressing the verb helped Carl in his comprehension problem. He continued through this technique to gain power in understanding sentences.

Emphasis on the verb may serve effectively in orienting the meaning in sentences in inverted order. Also, looking to the verbs in story problems in arithmetic and in reading material in geography and history serves to provide a valuable key to comprehending meaning.

As the child progresses into the reading of several sentences which are connected in thought, he must reach a new plateau in reading complexity—that of reading a paragraph. This calls for ability to carry thought from sentence to sentence through a sequence of related ideas. Awareness that the verbs carry the action and recognition of the correct subject for each verb is required here, too. Pronouns and their antecedents may provide trouble spots in paragraphs, and direct quotations may make for further confusion. As an example, we might consider the background of understanding that a child must possess in order to interpret the meaning of the following three sentences from a first reader and to answer the teacher's question, "Who painted the eggs?"

Sally ran into the henhouse.
Then she said,
"See the eggs. I made the eggs
a pretty color."

The child needs to know the significance of the quotation marks and the connotation of the word *said*. He must be able to trace the pronouns *she* and *I* back to their antecedent *Sally*; and he must recognize that the meaning of the word *painted* in the teacher's question is the same as that of the words *made . . . a pretty color* which are found in the story.

As the child outgrows the content of such simple stories, his need for strong and steady growth in reading becomes increasingly greater. With his interests and experiences constantly expanding, we teachers must endeavor to meet the challenge of helping him, not only to learn to read, but also to want to read and to become a reader. Following are some suggestions which, in addition to those already mentioned, may serve as reminders of some of the facets in the problem of improving the reading ability of deaf children.

1. We, as teachers, should be familiar with the best methods and techniques for teaching reading and be discriminative in adapting them to the problems that deaf children have in learning to read.

2. The teaching of reading skills includes showing pupils how to use them. We should work with the children to show them *how* to look for details, and to follow directions. They need to be trained to assimilate facts, to stop and think about these facts, and to predict an outcome. Concentrating on one given skill at a time, until the pupils have achieved a certain degree of mastery, will help stabilize that skill for them. At all times it should be emphasized that reading is thinking.

3. Repetition may be provided through plenty of teacher-made and commercial materials. This practice work, in addition to improving skills, may also serve as an excellent diagnostic means of discovering each child's areas of difficulty.

4. We must continue to teach reading at all levels. It is frequently stated that the failure of teachers to give reading instruction beyond the primary grades and to recognize the specific problems involved in the different types of reading is an important factor in pupils' middle-grade slump in reading and their later poor reading ability.

5. As the child's reading progresses, we must be alert to each factor that increases the complexity of the material and guide him in making the transition to new levels. He needs guidance, for example, in learning to carry the thought from a few related sentences to a paragraph, then on through a page, a chapter and an entire book. Reading material is geared to present this development in easy stages and it is our task to so use it.

6. The differences in purpose in narrative reading on one hand, and content subject or study-type material on the other should be made clear to the pupils. We should familiarize them with the differences also in the structure of the two types of reading material.[5]

7. Much can be done to stimulate imaginative power in the children. Read stories to them and train them to visualize the persons and objects, time and place in the stories. Teach them very simple fanciful poems and have them make drawings for the poems and stories. Teach the vocabulary related to fairy stories and hero tales.

8. Wide reading of easy-to-understand but interesting material will strengthen comprehension and stabilize reading habits. Certain chapters in science or social studies books may be assigned to be read in relation to topics being carried on.

9. Independent reading may be encouraged by having attractive and interesting but not too difficult books available. Many of the 25-cent and 35-cent books found in drug and grocery stores may be utilized. In these inexpensive books, aids in vocabulary may be provided by labeling objects in the picture such as is done in picture dictionaries. A word list with meanings may be placed in the back of the book. Familiar synonyms or easy meanings may be written on the page above difficult words, provided the children understand the distinction between "officially" putting markings in inexpensive books to help children understand words and promiscuously marking or mutilating books.

10. Very simple book reports given both orally and in written form may be very beneficial in encouraging independent reading and in training the child to do purposeful reading. He comes to enjoy the familiarity with books which grows out of his experience with simple reports.

11. In all types of reading activities, we may learn much about the pupil's success by carefully observing him. When he is reading silently, we may note whether his facial expression is thoughtful, intent, puzzled, amused or completely apathetic. Reactions, such as a smile or a chuckle, a gasp, a question or a trip to a reference book are very revealing. They may indicate that the child is not only achieving a good measure of comprehension, but that he is also experiencing reaction to and integration of what he is reading—conditions which complete the act of reading at his level.

All children, in so far as it is individually possible, are entitled to become able to read, in order that they may enjoy the great satisfaction that comes through reading.

5. Fitzgerald, M. H., "Reading—The Key to Progress for Deaf Children," *American Annals of the Deaf*, Vol. 102, No. 5.

Recreational Reading and Library Program

PATRICIA CORY

Mrs. Cory is librarian at Lexington School for the Deaf, New York.

Definition of Terms

To have a program of any kind presupposes someone actively planning and directing that program toward certain specific goals. It seems reasonable to suppose, then, that to have a library program presupposes having a librarian to direct it. For the purposes of this paper, therefore, I will use the term librarian to describe the professional person in charge of the library's program, whether he is a librarian trained in children's work and children's literature, or whether he is trained in the special field of the education of the deaf. The *only* important point I wish to make is

this: I will not be referring to a library clerk whose function is to file, type and perform other housekeeping chores—I will be referring to the professional person, a college graduate with a year of graduate specialty in one discipline or the other, or both, who is trained to work with children, with educational materials and their purposeful use.

The philosophy of the Lexington School maintains that we deal with children, not deaf children, just children first and foremost. Our library program reflects the school's philosophy, and we have planned activities virtually identical with those you would find in a hearing school's library. The children come to us for activities designed to provide interest and satisfaction to *any* children at a given age level. We strive to create a climate which is warm, pleasant, cheerful—where children will feel relaxed, among friends, and among books, which are fun and also are informative and helpful. Such a climate is not created in a day, or a month, or a year. It is created through many repeated and varied experiences in the library. The child's attitudes toward books—books for fun and books for information—are not built overnight. They are the cumulation of the child's experiences, successful or frustrating, with books in the library, in the classroom, and at home.

For the Lexington School child, the recreational and library use of books begins when he is very young. It starts with individual visits of one or two children at a time from nursery school or from the preschool classes coming in with their teacher for visits of short duration to look about, to get acquainted, to select a few picture books to carry back to the classroom and share with the other children, or perhaps to see a very short, simple motion picture. These library visits parallel the pre-reading, or reading readiness, programs in the classrooms, and are designed to enrich and extend the children's experiences with books and other materials.

The program continues for the primary department when first graders begin coming for their first formal weekly library periods. Now they begin to learn (unconsciously, of course) that this is not a playroom where they run about without direction, nor is it a classroom where they sit at a desk, have "news," speech, or do auditory work. It is a place where certain acceptable conduct is expected, where they return their books, where they gather around the librarian for an orally told story. It is the place where they are free to select from a considerable body of books, one book of their own free choice, which they will sign out and which they will be responsible for. (When I say "free choice" please remember that everything is relative. Within certain prescribed limits the young children do have a free choice in their selection. They cannot, however, be expected to exercise sound judgment over a wide range of material, so certain guides are set up for them. In part, this is accomplished through the location of the books. For example, several hundred picture books and easy reading books are shelved together in one corner of the room, and the primary children are guided toward these particular shelves from which they may have the free choice of a book. The teacher and the librarian working together try to suggest and introduce suitable books in an affirmative way. We use the veto power as little as possible.) The library is the place where the children sit down together with the librarian and their own teacher to read individually for the final 8 to 10 minutes of their library period.

In the middle school, both the complexity and length of the stories selected for oral telling greatly increases. The reading level of the book collections from which the child may choose his books rises steadily. In the last years of middle school we gradually begin to hold the child responsible for giving back something about the library books which he has been reading. Informal as it is, this is in effect a brief oral examination. It is not to test knowledge of specific vocabulary, but rather it is to draw from the child a general sense of what the book is all about, plus the child's personal reaction to it. They will tell us the name of the author, the title, and a descriptive sentence or two such as: "My book is about pets. The children learn to take care of them. It is a cute story." Or, "It is about a family who went camping. They're a funny family. I liked this book."

As the children move toward and into the upper school they are no longer confined to the use of certain sections of the library, but are free to roam about the entire collection at will. They are now constantly exposed to the great, broad body of children's literature—the classics, fairy tales, myths, biographies, stories from history. Their reading abilities are now at, or closely approaching, the third dimension in the meaning of language, referred to in Dr. Miriam Paul's article, "Language Development Through Reading," as the dimension of "intentional meaning"—the most difficult, intangible dimension when the children "can lose themselves in the ideas and feelings of the author."[1]

From time to time these young people in upper school are still told stories of suitable conceptual content, but more and more they participate very actively in discussing books. Anyone going by our library can see us gathered about in a circle talking about books, all participating in free, informal conversation in the same way children in a hearing

1. *The Volta Review*, March 1958, p. 105.

school book club might do. The children are required to know the author, title, illustrator, publisher and date of publication of the book they're reporting on—and to have an understanding of why it is important for them to know these things. They must categorize first into the two broad classes of fiction and non-fiction, and then into such subdivisions as fairy tales, biography, history, geography, science and so on.

They must be able to identify and select the important points in a book and discuss them in more depth than would be required from a middle school child. Many of the classes will do written language work in the form of book reports which are a direct outgrowth of their library and recreational reading.

That is the skeleton outline of our recreational library program. It, in itself, is very much like a typical program found in hearing schools, I know, I worked among hearing children both in a core curriculum school and in public library children's rooms for some years before starting to work with the deaf.

Yet, it would be ridiculous for me to stand here and tell you that *everything* is the same in a school for the deaf as it is in a hearing school. You and I know that simply isn't so. The very fact that many of us, working in schools for the deaf, are constantly trying to devise more skilful methods to help the deaf is eloquent testimony to the fact that there are special methods to be used in reaching the deaf in their total education and in leading them down the paths of reading for enjoyment and general cultural background.

The *selection* of the books to be used lies right at the heart of the problem of conducting a library and recreational reading program for deaf children. This holds for the selection of filmstrips, motion pictures, recordings, and periodicals as well. Good selection in turn depends on the competence of the person conducting your program. The librarian will need to have broad knowledge and familiarity in three distinct areas:

1. A knowledge of the deaf—an intimate knowledge of precisely what are the language and conceptualizing difficulties accompanying severe hearing impairment. Unless a person has a firm grasp of precisely what this language disability means in terms of reading free style, idiomatic, colloquial English his judgment in selecting books will be a farce. With experience with the deaf goes a sharpened eye trained to look critically at a book's language, its concepts, the ways in which the concepts are approached and presented, and at the type of illustrations, charts or diagrams. With knowledge of these difficulties goes a sense of how books may be used with the deaf—how one book may be used in one way at one level and quite another way at a different level. The popular story of Madeline is one example. Madeline may be used first for the oral picture story hour. It has action, it has suspense—our children readily identify with the residential school situation in which Madeline lives. In short it is a natural, surefire story to be told orally at preschool and first grade levels. Much later it can be used for reading—and even later for an introduction to rhymes and poetry.

Another example of the multiple usefulness of certain books with the deaf is *The Big Red Bus*. This can be used for lipreading and oral story telling from nursery level through preschool, for beginning reading in the first grade, and for the teaching of words which signify sounds such as the coins go *clink*, the horn goes *beep beep*, the cars go *zoom*.

As long as there is no subsidized publishing of books for the deaf we will be dependent upon the books published for hearing children, and must make our choices from among them. I am not saying that is necessarily bad—I am saying that it means the person selecting the books from this mass of material must first of all know the deaf and all that deafness means.

2. The librarian must also have an intimate knowledge of the large and growing body of children's literature. He must not only know the classics from *Peter Rabbit* and *The Three Bears* on up through *Alice in Wonderland* and *The Knights of the Round Table*, but he must have the responsibility for keeping abreast of the large publishing lists brought out by the major publishing houses each year. No other country in the world has the enormous children's publishing field which we have in America today and this very embarrassment of riches presents a time consuming problem. This is a problem which must also be understood clearly by the administration because it does take time to build a good, active book collection. It takes time to read the current book-reviewing journals and it takes time to follow them up and to read, to examine, to select and to purchase new titles to keep a collection fresh and appealing for mentally alert and active children. The more special the group for whom the books are selected, the more painstaking will be the process, for more titles will be discarded than are actually bought. So, in addition to knowing the deaf, the librarian must know the publishing field and have allocated to her the time and responsibility to carry out the selection and purchase of books. There are no short cuts and there is no other way you can acquire a collection of material suitable for a recreational reading program with the deaf.

3. The third area of knowledge required for intelligent book acquisition is a thorough knowledge of the school's philosophy and its

curriculum. I am familiar with what all my regularly scheduled classes are doing in language and reading, and this knowledge is invaluable when I purchase books. For example, I know what Lexington middle school I and II are doing in language and I can keep this in mind when ordering books. The same goes for the subject areas. I keep our science program and our social studies curriculum in mind when I shop for books. And I try to be always on the alert for new easy materials which will be generally useful in such areas as family relationships, sizes and shapes; attractive supplementary texts or story books on arithmetical concepts and measurements; material which illustrates space relationships, such as *in front of, behind, under, on top of* and so on. I buy books with our philosophy and general program in mind. The librarian at any of the other schools represented here might well be building a very different book collection because of their curriculum needs.

METHODS OF STORY TELLING

One of the very best ways of presenting, or advertising, anything is by word of mouth. You have all had the experience of having a friend say to you, "Oh, I read a wonderful book," or "I saw a wonderful play," and then go on to tell you just enough about it to whet your appetite and make you want to read the book or see the play. So it is that story telling is a superb word-of-mouth way to introduce literature to children and to lead them into the desire to read for themselves. It is intimate, it is direct—a personal and immediate way of arousing interest and motivating the desire to read. I count the hour lost, absolutely lost, when several children in a class do not jump forward at the end of a story and ask to borrow that specific book.

For the deaf child, I believe going over a story orally does much more than it does for a hearing child, because for the deaf child knowing the story line, the plot, the action, the important points of emphasis helps him over the difficulty of reading the colloquial language. He will not understand every word or phrase, or every language principle, but he can figure many of them out more easily if he knows the important points. Having been told the story, the book appears less formidable and the deaf child is more willing to take a stab at reading it.

I do believe firmly that the method of successful story-telling to the deaf differs greatly from methods taught in library schools or in general schools of education throughout this country. Beginning with "Once upon a time" and continuing on through a story, giving a polished performance as a master storyteller, is out. I like to begin with some simple questions, or a discussion of the title and what it means, or a discussion of the picture on the cover to give the children some clues to the type of story. I want to lead the children into deducing whether we are about to launch into a fairy tale or make-believe story, a funny story, a sad story or a true story. Then, when we actually begin the story, they feel comfortable and secure. Have them guess, give them hints, make them think and reason, and use their imaginations. In other words, involve them so deeply and so directly that they are truly helping you to tell the story. Above all, the atmosphere should be kept pleasant. The story should be kept moving. I deplore the constant stopping of a story to teach. If a story proves to be too hard, or just plain uninteresting I would rather stop than continue to force attention. Your audience may remain courteous, but if they aren't genuinely interested and entertained they will hardly be motivated to read the books you are talking about. Some other good devices to help put a story across are dramatizing the action, using pictures, or using the blackboard to draw stick figures, to explain important or difficult points in a story.

These story-telling devices kindle the sparks of interest. A good story well told makes a lasting impression on the child's mind over a long period of time and in surprising ways. A teacher in our upper school was recently doing a unit on classics with a rather slow group, and started them off on fairy tales. We were puzzled by the rush of the whole class to get Andersen's *Steadfast Tin Soldier*. When we asked them why they all wanted that story they said: "Because Mrs. Cory told us that story when we were little."

In addition to oral story-telling in the library, there is also the practice of actually reading the text word for word. This we do with certain selected older classes, and it is a lengthy procedure covering several weeks' time. Thus we take a book and make it into a "continued story," reading a chapter or even a few pages a week. This is best done with children from 11 to 14 years of age who are interested in reading fairly complex material and are receptive to the language and who can sustain a high degree of interest over a period of several weeks.

Highly specialized selection of suitable material, and special methods of story presentation are two of the most important aspects of a library recreational reading program in a school for the deaf.

I should like to make one final, general comment. I have talked exclusively about the program carried on within the Lexington School library. Obviously, no good recreational reading program will be confined to such narrow boundaries. It must permeate the entire school and be an integrated part

of the whole school program. The major responsibility for making it so will devolve upon the administration—the principal, the supervising teacher, the reading supervisor—but the librarian can make certain contributions, too. She has the choice of building a beautiful collection and keeping it neat and just so in an ivory tower, or building the best collection of materials she knows how to, and then working to keep it moving and in use. This she can do by:

1. Working very closely with the reading supervisor.

2. Working closely with the individual teachers both during the library period and outside of it. All Lexington teachers accompany their classes to the library and participate freely. If points come up during a story that a teacher wishes to have emphasized she can either ask me to do so, or we can stop the story briefly and let the teacher step to the front and make her point. Teacher and librarian also discuss together the children's reading performance and interests and go over new books and visual materials together.

3. Working closely with the specialist teachers in social studies, arithmetic, science, vocational subjects and so on.

4. Planning for maximum accessibility—through a central location for the library; an open door policy; the use of low, open shelves from which children and faculty alike can easily pick things up; and having no locked cases of hidden materials.

5. Having special exhibits, displays, bulletin boards, racks of new books, or books on special subjects such as Hallowe'en, the UN and so on.

6. Preparation and distribution of graded lists and annotated lists for the teaching staff so that they will be aware of new books and films as they are purchased.

7. Sending small, fresh groups of books into the classrooms from time to time, and providing the teachers with books to fill their specific requests, or to answer questions which have arisen in the classrooms.

8. The use of related visual materials which may stimulate interest in reading. Our library, for example, is in no way restricted just to printed materials. We believe that all the media of communication reinforce one another and we use them all, either singly or in combination. We select, acquire and promote the use of any tool which will help to teach; which informs the child; or which will broaden his cultural background, stretch his imagination and give pleasure.

In a school for the deaf, where the teaching of language is of the utmost basic importance, the reading and library programs will be interrelated, and will be almost inseparable from the language program. This same interrelationship extends to the classroom and the library at Lexington, where we work together as a team.

Tuesday P.M.

C. The Language Curriculum

Chairman: Dr. Mildred A. Groht, Principal, Lexington School for the Deaf

Living Language for the Deaf

MILDRED A. GROHT

Dr. Groht was, until her retirement this June, principal of Lexington School for the Deaf.

The normal everyday life of deaf boys and girls should be not too unlike that of their hearing peers. It is true that the deaf cannot enjoy music as the hearing can and are shut off from the radio and the spoken voice in the movies and the theater, though they can and do enjoy the rhythm of dancing and the rhythm of song. Children the world over have much the same likes and dislikes and share similar joys and aspirations. Their wants are the wants of the young and their hopes are the hopes of all growing boys and girls.

All of us who work with deaf children long to have them live happy, normal lives in their own special worlds. We want them to be happy, well-adjusted persons, who can share with both the deaf and the hearing people, all the interests, activities and thoughts that are constantly being expressed. To do this, the deaf must know, understand and use the language of those with whom their lot is cast, for it is only through communication that people everywhere learn to know one another; share ideas and ideals; give and receive help, encouragement and pleasure; meet problems; follow programs; and, in fact, really *live* with each other in harmony, understanding and friendship.

By *communication*, I mean speaking, writing, reading and comprehending the language of those with whom the deaf live, work or play. I mean the use of language for living with others, for it is only through the ability to communicate that any of us can live satisfying and satisfactory lives, whether we hear or whether we are deaf. Since this is true, our deaf pupils should be equipped with language skills that are *like*, and not *unlike* the language skills of those who hear. They should have an unconscious use of language to make themselves known, understood and accepted. They need "a language for living"

in a world that makes language the instrument for thinking, acting, learning, knowing and sharing what is thought, known and believed. No other kind of language will be worthwhile to the deaf. Only the use of spontaneous, correct, natural language will do for the deaf what language does for the hearing.

The big question is: "How can we give this sort of language to the deaf?" All educators of the deaf who have conscientiously considered this question have longed for the perfect answer. What the perfect answer is, I cannot say. I *can* say, and with deep conviction, that given the right teaching from nursery school through high school, the deaf child of normal intelligence will come up with a very usable and satisfactory use of language, and the deaf child of better than average intelligence will come up with a use of language that is comparable to that of the hearing boy or girl of the same age and of equal ability.

To achieve the greatest success in teaching the deaf child to use, understand and *enjoy* language, one must begin at the nursery school age or even earlier. The three-year-old deaf child who has unconsciously sensed the need and enjoyment of communication, is well on his way to the attainment of language that can be used as a means of communicating his own feelings and interests, and of finding out feelings and ideas of those around him. He wants to make known to those about him what he has seen, done or experienced and also, he wants to get across to these people his own reactions to what has taken place. Very young deaf children who are accustomed to being talked to and to being included in what is being said, will soon depend on communication for the exchange of thoughts. When a three-year-old returns to school from a weekend at home and attempts to tell his nursery teacher or his tutor what has transpired at home, he is well on his way toward a realization of the great significance language plays in the communication of one person to another. The relationship of the teacher to the very young deaf child should be exactly the same as that of the relationship of a hearing person to a hearing child. The same pleasure, understanding and assistance should be given and the same enthusiasm manifested. The nursery child should *expect* to be talked to and should respond as best he can because talking has a meaning for him and he likes to take part in this happy and rewarding way of exchanging ideas. The emphasis should always be placed on the *idea* and not on individual words, for, unless he learns to look for meaning and not for words he will never become an apt lipreader. I am convinced that only the child who *is* a good lipreader will have good language as he grows up. The deaf child who is a good lipreader constantly *sees* language just as the hearing child constantly *hears* it.

One cannot make a child a good lipreader by giving exercises, by using words out of context, by *drilling* on some particular vocabulary considered by the teacher to be a necessity. Many years ago, when I entered the profession, it was common practice for teachers to make beautiful charts, showing pictures of various articles of clothing. The poor little deaf children were taught to recognize from the lips the names of the various pieces of clothing and became very adept at pointing to a picture of a shoe, or a dress, or any other piece of clothing on the chart. This exercise was done every day, and yet, the children of that era were wearing shoes, dresses and so on and could have, and should have, been learning to recognize on the lips *remarks* about what they were wearing. How much better to chat about a dress that is new, or pretty, or torn, or dirty; or a party dress or a dress that was a present. How much more real it would have been to talk about shoes that are new, or old, or too big, or muddy or shiny! Such an approach would have given those children a sense of the value of language. It would have given them a language to live with.

Children who learn to lipread verbs (usually decided upon by an outline given to the teacher) are not being taught the real significance of the use and meaning of these verbs. So-called "action work" does not provide deaf children with a living language. For a child to perform an act without meaning or purpose is a poor way indeed to help him comprehend the full import of the particular verb he is supposed to understand. To tell a child to laugh, or cry, when there is no reason for him to do so is about as foolish a way as can be conceived of for giving him a concept of what it means to really laugh or cry. With children, laughter and tears are common occurrences and an alert teacher can find many opportunities for introducing the verbs, *laugh* and *cry*, when their use is indicated. Using pictures or telling stories can further the use of these or any other verbs. Laughing and crying are activities common to all people and are a part of living, and for a deaf child to be made to laugh or cry (or rather pretend to do so) on demand is, when one considers it carefully, a ridiculous as well as a meaningless activity.

The deaf child who acquires, from earliest childhood, an awareness of the use of language for a purposeful exchange of thought, will, by the time he is five or six, be able to take a very real part in any conversation that centers around himself, his family, his friends or his activities. To be sure, he will need help in doing so. As a matter of fact, he will need help for a long time to come. First

things must come first, however, and in order to lay the foundation for the acquisition of language to meet all situations, fill all needs and bring about satisfactory relationships with others, there must first of all be instilled in the child a natural feeling and desire for the use of words. It must become *instinctive* for the child to express himself verbally. This can only be done by teaching him the value of words—words in context and not in isolation—words that have to do with what *he* wants or needs to talk about. Little deaf children can become very adept at catching corrections, new expressions or remarks and new question forms from the speaker's lips when they see value in them and wish to use them to make what they are trying to say clearer and more interesting or exciting.

We hope to demonstrate this to you this afternoon with a few children from our preschool class at Lexington. These youngsters have passed through our nursery school for three-year-olds and also through the group for four-year-olds. Last September, they moved, at the age of five, into the preschool class. We feel that they have begun to think in terms of language and they do attempt to use it to get over to others what they wish to say. Two of the children have deaf parents who talk to them constantly. We hope these children will demonstrate their natural inclination to *talk*. They have not been "drilled" in any way at all, nor coached. We are hoping that they will do what, at school and at home, comes naturally to them and that is, talk about what interests them at the moment.

Deaf children who are given a proper start in the use of speech and language in their early years generally show desirable progress as they move through the school. They usually show increasing ability to think, reason and enjoy language and attempt to use it whenever it is called for. They also read more comprehendingly because they are able to visualize the conditions about which they are reading. It is not the *words* in the reading materials that interest them, but the ideas that the words convey. They are able to associate what is being read with their own knowledge and experience. In other words, they really *read*. And because this is so, reading is a pleasure to them, not a task and not something to be done only in the reading period. For the deaf, the ability to read understandingly is of greatest importance—not only for the pleasure provided by books, but in later years for the knowledge to be gleaned from them. In the upper grades, the deaf pupil who is a good reader and who loves to read will be bound to have good language, for through reading he will add to his vocabulary many new words and expressions and these he will incorporate into his own use of language, making it more colorful, more colloquial and more inclusive. Therefore, from the lower school to the high school, reading should be a vital part of the language program.

Children in the classes of the lower and middle schools should be given, not only the language for everyday living, but should be trained to look for new language forms themselves. They should be encouraged to pick up new and different ways of expressing an idea or a fact. Not long ago, a nine-year-old used a colloquial expression that seemed new to me. I asked her where she learned that expression and she answered, "Oh, my girl friend says that all the time." This deaf child liked this particular language and so it became part of her own vocabulary. It is a good omen when a deaf child, upon meeting a new word, makes an attempt to figure out its meaning. Not long ago, the Consul for Brazil was visiting in a class of 11- and 12-year-old girls at Lexington School. The children were very much interested in this charming and delightful guest and were having a very cordial conversation with her. One girl asked the visitor what kind of work she did. The reply was, "I am a diplomat." The girls were dubious about the word *diplomat*, so the teacher wrote the word on the blackboard. Still dubious looks!

Then a venturesome 11-year-old said, "I think I know what that word means."

When asked what she thought about it, she said to the Consul of Brazil, "I think you make diplomas." It was a wrong guess, but it was not a bad one. To the child, the two words differed only in the last letter and besides, it was near graduation time and the word "diploma" was in the air. The deaf child who tries to figure out the meaning of a strange word through association with a familiar word may on occasion be in error, but the error can be corrected. To my mind, it is better for a child to think for himself than to have everything given to him. He will not always have a teacher, or a dictionary at his side.

Deaf boys and girls, just as hearing boys and girls, do not and cannot acquire their vocabularies from their teachers alone. Hearing people build their vocabularies from *listening* and *reading*. The deaf from *watching* and *reading*. Those who listen well and read well usually have a great command of words, and the same thing is true of the deaf who lipread and read well. To all such people, language is desirable for many reasons—for communication, enjoyment, mental development, and living in a world governed and controlled by the use of words in all conceivable circumstances. As a deaf child moves from grade to grade, he should grow more and more alert to the language used by all of those

who are about him at home and at school. Each year should show a widening use of language and a more deeply ingrained habit of spontaneously using words to clothe thoughts. Unless this is so, the deaf will not be able to hold their own in class discussions, family talks and social activities where language is the medium of communication.

I do not think that acquiring language is an easy or a simple matter. I *do* think it is sometimes made more difficult than it need be. Too often, deaf pupils are poured into a common mold. They must concentrate on language forms which are prescribed for their particular grade, many of which are not even needed at that particular time. A classic example of this is having pupils learn all the tenses of a given verb when what they need is not *extensive knowledge* of that verb but *intensive work* on one or two of its forms because these are the ones they need over and over again to express themselves. I feel the same way about exposing deaf children to all the nominative, or possessive, or objective pronouns at one and the same time. That is certainly not the way in which hearing children acquire a facile use of personal pronouns. *They* learn them as their need for them arises. This approach should be followed in the teaching of any new language principle and in any grade. It is really surprising to discover that once the deaf reach high school they have pretty well covered all forms and all language principles needed by them. This they have done through use in connected language. They have developed mentally by this kind of learning, for they have learned *to think* in terms of language.

I have said many times, but it bears repeating, that if deaf children are to learn all the language forms they must have, they can do so only through constant repetition in meaningful situations. A teacher must be original, imaginative, versatile and ingenious if she is to succeed in finding ways in which to get sufficient repetition of new language so that this language becomes part of the child, so that it will be *his*, not temporarily but for whenever he will have need of it. She must be sure that each and every pupil in her class really *understands* the language he is using, for it will be of no future use to him unless he does.

Deaf children need *real teachers*, not givers of facts or information; for the deaf need to think for themselves, to reason out problems in language, to consider why one particular piece of speaking or writing is clear and why another is mixed up and not clear at all, to know what ought to be said on certain occasions and how to say it. The *real teacher* (and our profession has many) will teach language so that it will brighten, ease, help, comfort and guide her pupils throughout *all* their lives, and not just for the time they are under her care. The deaf need language for the same purpose as the hearing need it, and so it is imperative that they acquire a mastery of it. If teachers would constantly check and evaluate their teaching of language, I am sure there would be a wealth of new ideas for the teaching of it. Old methods that were not productive of natural, spontaneous, useful language would be done away with, and the deaf would be blessed with the ability to use language on all occasions, for the language they possessed would be a *living* language.

We are planning to show you a demonstration of the use of language by a few of the girls in our high school class. These girls graduated from junior high a year ago. In achievement tests at that time, their average grade level was ten, but in language it was eleven plus for all of them. I believe they are now eleven plus in literature also. The youngest girl, Roslyn, was 15 last February and is the child of deaf parents. She also has a deaf brother. The other girls are 16 and 17. I believe. All three girls have been at Lexington since nursery school. Language for them is also a language for living.

The purpose of demonstrating these two classes is to show the beginning and the end in the method of giving to deaf children not only a knowledge of language, but a feeling for it, and an understanding of it so that it can be applied to any situation or condition that may arise. We believe the language these children have is truly functional. It is pleasant for them to use it for self-expression and for the exchange of ideas. Language for them and for all children is the medium for living successfully and happily in a world where we live by words.

Demonstrations were given by Norma Harris, preschool teacher, and Mrs. Margaret Wood, upper school teacher, both of Lexington School for the Deaf.

Language Disability in Children with Hearing Impairments

ALICE STRENG

Miss Streng is chairman of the Department of Exceptional Education, University of Wisconsin-Milwaukee.

Every teacher of the deaf is bound to be perplexed by some children who seemingly cannot learn language, to speak and to read lips as do most of the children she has taught. I believe that these children are the ones who formerly may have found their way into the manual classes, or the non-oral classes in our state schools for the deaf. Since local boards

of education more and more are coming to accept the full responsibility of planning and providing adequate educational services for all handicapped children, they recognize the need for making provisions within their own school programs for multiply handicapped children who perhaps cannot learn language and speech through the traditional methods used in schools for the deaf.

I have chosen to present the case histories of three children who typify the kinds of problems which are increasingly challenging teachers of the deaf. These are children whose language development was delayed or retarded when they entered school. Though their level of hearing was depressed, their hearing losses actually turned out to be the least of their difficulties. However, they were placed in classes for deaf children.

It is questionable if children with language difficulties stemming from causes other than hearing disability should be educated in schools for the deaf. I am not entertaining a brief here for educating these children in schools for the deaf. I am merely trying to face reality by suggesting that until the time comes when more precise methods of diagnosis are available at the preschool level and when some concensus has been reached about educational facilities for them, teachers of the deaf will be obliged to teach them. In order to meet their special needs, teachers of the deaf must become alert to and aware of the problems that exist among children whose language fails to develop, for whatever reason. They must learn to differentiate their educational methods and approaches according to the children's condition.

Delayed or retarded language development may be caused by a variety of factors other than hearing loss. These include limited intellectual capacity, neurological damage or deficiency of a central nature, psychogenic factors, or combinations of these, with or without a hearing loss. Each child presents his own unique problem, and I believe must be dealt with individually. There is no agreement as to *how* these children should be taught, just as there is no agreement as to *where* they should be taught. Some professional persons regard all children with delayed language development as a homogeneous group as far as therapy is concerned, and feel that the approach to their education should be the same no matter what the cause or the condition. One approach may be a highly organized formal one in which teaching English sounds and blending them into words is the main avenue used in trying to reach these children. Another may be merely providing a permissive atmosphere in which socialization plays a dominant role and where the approach is one of helping children develop a self-realization necessary to establish oral language. It is my belief that the solution lies somewhere between the two.

The first case that I want to present is a young woman, Babs, who is now 22 years old. She is the youngest of three daughters of a Czechoslovakian mother and father. A foreign language was spoken in the home by the parents. Her sisters, all older, were of normal intelligence and had no hearing difficulties. According to her mother, Babs had very well developed language at the age of three-and-a-half. In fact, when she was just a little girl, she was usually asked to say "Czechoslovakia" when her parents wanted to show her off. At the age of three-and-a-half she fell for a distance of about five feet when a screen fell out of a window. She was found crying, sitting on the screen on the ground. She had a bump on the right side of her forehead and had injured her tongue. No other effects were noted at the time. Gradually she began to talk less and less until by the age of four she said almost nothing spontaneously other than *mama* and *papa*. At the age of five she was sent to a regular kindergarten and was given speech instruction by a speech therapist. It was thought that her hearing was quite normal. Subsequent audiometric examination established her hearing level at about 20 to 30 dbs in the speech range. She did not progress in the regular school situation, so a request for her transfer to a school for the deaf was made through the department of special education. Psychological examination indicated that her speech difficulty was a word aphasia. It was felt that she needed concentrated work in speech and lipreading and it was recommended that she be transferred to a school where she could receive consistent daily training. According to reports at this time, she was continuously over-indulged by her family. However, she got along pretty well with other children and was able to take considerable responsibility for herself. When she entered the school for the deaf it became quite evident that her hearing loss was not her greatest difficulty. However, she did not watch the lips, nor did she respond to oral commands when she depended upon her hearing alone. Her progress in interpreting the oral word through the two avenues of vision and hearing was very slow. Her progress in speaking was even slower. She was more easily reached through the printed form.

My contacts with her go back many years. While conducting a speech clinic for student teachers at the school in which she was enrolled I used to have her come to my clinic not only to demonstrate her peculiar disabilities, but to work with her. Together with her teachers we tried the sound-blending approach. She was taught to give individual sounds and blend them into words. This she could do with difficulty, but continued practice would

enable her to reproduce a word. In a few minutes she would forget the word and would be unable to recall it without help. She might remember the beginning or the end and forget the rest. The Moto-Kinesthetic method of Edna Hill-Young was also used. Tactile stimulation of the organs of speech yielded no better results. She was very conscientious in trying and seemed to be eager to learn. Her family encouraged her and did everything they possibly could to assist the school in making her learning situation profitable. However, there was some emotional overlay in her case. Her father was putting a great deal of pressure on the school and on her to speak better and she felt it keenly. To this day she is hesitant to speak in his presence.

By the time she was 12 years old, she could call the words in a first-grade reader but she could give no interpretation of what she read. She could write the names of common objects and animals such as elephant, camel, hippo, and she could write about a picture in simple sentences. There were, and still are, considerable gaps in her comprehension of the spoken word. However, she responded very easily to natural gestures. Her mode of speaking to her classmates was a combination of word and gesture, as it is today.

Mental tests results over the years indicated that she had an IQ of 84 on the Ontario School Ability test at the age of 12. A year later she scored 92 on the Otis, three years later 70 on the Ontario and two years later still, 75. Her academic record shows that when she was 14½ years of age she had reached a grade of 4.7 in language ability. A year later when she was 15-4 her language grade was 4.8. When she was 17½ her language grade was 4.8. In other words, she had made no progress from the time she was 14 years old in her ability to comprehend or to produce language.

A neuropsychiatric examination when she was 12 indicated that she had an aphasia of a mixed variety, there being a perceptive defect as well as a motor aphasia. It was supposed that the cause of the difficulty was traumatic and that there might have been a number of small sub-cortical hemorrhages in the temporal and parietal lobes on the left side. Also it was suspected that she had some anomalous blood vessel formation, a hemangioma, and that her childhood accident might have been coincidental to or have played some role in the production of hemorrhages and the abnormal vessel formation. This is a rather common vascular malformation in epilepsy, but there had been no seizures in this case. It was suggested at this time that a vocational education be considered rather than continuing efforts at speech education.

Babs has a very sunny nature. She is very friendly and gets along easily with other people. Her teachers sometimes felt she was a little stubborn and showed evidence of not wanting to work very hard. Since she was over-indulged at home this may account for some of her lack of initiative. She was a good artist and expressed her thoughts effectively through this medium. She also enjoyed working with crafts. Her mother died when she was 13 years old. Since then she has lived with her father and her married sister and husband and their two children. She does not take any responsibility in the home. She does not even babysit for her sister. However, she has sufficient stability to have enabled her to hold the same job as a filing clerk for four years.

Generally, complete recovery from aphasia resulting from brain damage in the dominant hemisphere in young children can be expected. Only when both hemispheres are injured is recovery uncertain. In Babs' case we know that her accomplishment was minimal and that the therapeutic measures that were used did not fulfill our hopes for her. Who is to say whether it was the method or the injury which prevented full recovery?

The second case is one of a child, Jay, who is now six years of age, the older of two children. He was born in August 1952, the son of German-Irish parents. His father owns a small business. Both mother and father are handsome people. Both are perfectionists. They have always demanded extreme order in the home. Jay had to learn to put away his toys on the same shelf in the same order. He got so he refused to play with any of them. His father always has expected immediate obedience from him. The child himself is very handsome, well-developed and always neatly attired. Just before he was four years old he was referred to the school for the deaf as having a severe hearing loss. He had been enrolled in a private nursery school where his unusual behavior was his outstanding characteristic. The preschool entrance psychological examination to determine his school readiness indicated that he had a severe hearing loss. On the Leiter International Performance Scale he tested slightly above normal. Only when the examiner assumed an authoritarian position, however, was rapport established with him. He seemed mildly hyperactive and distractable and had a short attention span. On the Vineland Scale of Social Maturity he showed an equivalent of about six months beyond his chronological age of four years. In fact he could zip up his jacket by himself by the time he was three years old.

The child's first days in school were hectic. He would scream when it was suggested that he go upstairs to the next floor, or into any other room but the kindergarten. He did not respond socially to children or adults. He

did not participate in group activities nor did he show any interest in them at all. He vocalized continuously with a high *ee-ee-ee* sound. He had frequent outbursts of uncontrolled temper. These episodes would be followed by quiet thumb-sucking. At other times he would literally run around the room aimlessly or sit in a crouched position rubbing his lip or nose. His mother sent the cover of a corn flakes box to school with him because its possession seemed to keep him quiet. He carried this around all day and gazed at it for hours at a time. When the teacher took it away he became almost frantic, running around wildly looking for it until he had located it. This went on for days and days. After a trial of several months it was felt that he was not ready for the social situation of the school and was excluded for six months.

It was suggested that he have a neurological examination. His EEG yielded a slow, high altitude activity which is consistent with the residual of a brain injury. Further evaluation revealed that his hearing level was not as low as had been thought, but that he was not using his hearing in everyday living. Evidence of a psychic disorder with marked autistic emotional involvement seemed the most plausible explanation of his behavior. The parents, however, were not convinced that he was not deaf and took him to the eastern part of the United States for a special kind of manipulative therapy done on the Eustachian tubes. The medical report after therapy indicated that he had benefited from the treatment. He was allowed to return to school the following term.

When he returned he seemed a bit better adjusted, though he was not yet willing to make contacts with teachers or children in the normal fashion. On the playground he would devote his entire play period to banging on the school fence. When he was taken away he would cry, remain away for a minute or two and return immediately. This behavior continued for several weeks. However, he began little by little to seek the attention of the teachers and children by exhibiting aggressive behavior. He kicked at teachers and children alike. At times he consented to sit on the teacher's lap but he might suddenly grab at her hair and pull it without warning. Actually, he was allowed to do very much as he pleased unless he became very disturbed and disrupted the class. Then he responded to authoritarian discipline. Isolation usually evoked tears.

From time to time the kindergarten teacher would take him to her tutoring room to see whether he would respond to formal instruction. He made no progress in identifying familiar objects about him when they were presented for lipreading. She then began showing him the Alcorn vowel symbols. He learned to identify them visually through the printed symbol as well as auditorialy when they were spoken close to his ear, and to repeat the individual sounds. He seemed to enjoy these lessons very much and was always eager to come for this work period. Before long he could read the Northampton Chart vowel and consonant symbols. The next step was to blend sounds into words. It took several months before he accomplished this feat, but once he got the idea he began to learn rather quickly. However, his teacher felt that this procedure resulted in a mechanical rather than a meaningful production of language, for he never volunteered speech. She also tried using a hearing aid with him. When he wore the hearing aid he would turn up the volume to its highest pitch and did not seem to mind the extreme amount of amplification from the group hearing aid. At the same time his teacher felt that his hearing was almost normal. She also thought that his intelligence was well above normal.

Now, after having completed one-and-a-half years in school he can identify, recognize and reproduce about 50 words including the numbers to 10 and the names of the colors, of which he is inordinately conscious. He is now able to identify words or sounds spoken in a quiet voice at about two inches from his ear. He loves music and likes to listen to it. His speech is not precise and he uses no spontaneous language as yet.

In his art work at school he tends to want to draw squares and color them, but he will respond to suggestions to draw other things. He can copy an outline of an animal or of a human stick figure if it is presented part by part, but has difficulty copying a whole picture. He never misses on colors, however. If left alone he reverts to coloring squares. Just how much he sees in wholes and how confused his figure-ground perception is has not yet been determined.

His present teacher has done a great deal to make him seem like a normal child. He tolerates children now and likes some adults. He responds to affection and occasionally even goes on a kissing and hugging spree instead of a kicking binge. Only occasionally does he wander off into a dream world of his own, and then is quite easily recalled from it.

If Jay is really an autistic child, the prognosis for his future development is not too good. If his condition is the result of a sterile emotional environment, his recovery will depend largely on changed attitudes of his parents. This means a possible involvement in a psychiatric therapy program for them as well as for the child. The school can attempt to teach some language and can aid in unlocking the doors for this restricted child, but it cannot succeed without full cooperation of the parents. If Jay's problems are not pri-

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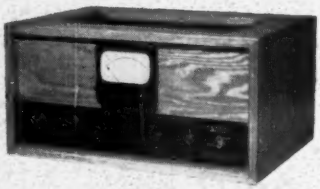

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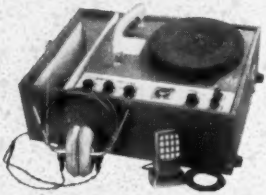

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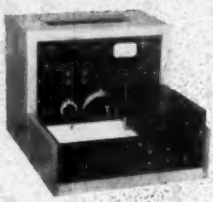

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marily of an emotional nature, what are they? Who holds the key to his riddle? Until these questions are answered his teachers will try to give him support, they will try to understand his internal turmoil, and they will go on trying to teach him. They are hopeful for Jay.

The third child whom I wish to present is Freddy. He will be 10 this month. He is the older of two children of upper middle-class parents. His father is a dentist. He was a premature, seven-month baby. As he weighed only four pounds at birth, he was kept in an incubator for one month. He entered kindergarten at the age of four and was retained there for an extra year beyond the normal two, because of his immature behavior. His speech was practically unintelligible and his ability to attend to a task practically nonexistent. Because a hearing loss was suspected, he was tested for possible entrance to a special class for children with impaired hearing. All audiograms were unreliable until he was eight, when a hearing level of about 40 dbs was established for him in the speech range.

When he was six and a half his score on the Goodenough Draw-a-Man test indicated an IQ of about 70. Later, psychological tests at the age of seven indicated 64 on the Binet, 92 on the Ontario School Ability examination, and 105 on the Goodenough Draw-a-Man test. The rather wide disparity in the IQ range seemed to the psychologist to indicate the possible presence of factors other than mental retardation as the basis of his behavior. When he was nine and a half he made a score yielding an IQ of 75 on both the Goodenough and the performance part of the W.I.S.C. His teacher feels that he is definitely functioning at a level below normal, though what his intelligence really is, is not yet known.

His transfer to the special class was made when he was seven years old, for he had not succeeded in the regular elementary school. At that time he displayed an emotional instability which led to tears at the slightest provocation. If he could not locate his lunch box or his boots he became greatly upset. In the classroom he vocalized continuously, singing out a modified bugle call at any time of the day. When reminded that he was to try to be quiet, he said, pleasantly and honestly, "I will," and immediately began his tune all over again. The tune was often alternated with shuffling feet. He sucked his thumb and ate his crayons. He had to be urged to complete even the simplest task. Freddy's speech was mostly jargon when he entered school, though he spontaneously used expressions like, "Let's go out and play."

During his first year in the special class he learned to read the names of the colors, to count to five, to recognize the numerals to five. He learned to read simple sentences consisting of a subject and a verb about a boy, a girl, a baby, or a man or a woman. He would know this material for several days and the next would not know it at all. In writing he used two hands at first and made many reversals. He learned to write whole words, such as his name and names of objects. He was proud when he wrote anything correctly and praised himself for it. Not much was attempted as far as his speech was concerned during the first year, since he was so easily upset. In fact, even during the second year not much was attempted in the correction of his speech, because he was still easily frustrated by concentrated tutoring. He could not stand the pressure of having to work over and over to correct a particular sound or word. However, he continued to learn more and more words and to read experience stories concerning himself. His teacher had attempted to have him use pre-primers but she did not succeed in this at all. By the end of the second year in the special class, he was reading in teacher-prepared books. His teacher had rewritten three series of primers and Freddy had read nine of them, all based on the vocabulary he had learned previously in his experience charts.

In arithmetic he learned to count and write the numerals to 50. After writing them he could not recognize them. When his teacher pointed to 43, for instance, he would say 21 or 16 or whatever number came into his mind. He had great difficulty in grasping the concept of the days of the week or time relationships and is still confused about them. He has not yet differentiated between right and left.

During the three years that he has been in this special class his behavior has become considerably modified and today he does not stand out as being different from the rest of the children in the class. He is a pleasant, quiet and much more stable child than he was, though he still has his flare-ups. He is reading in a second-level first reader. He very frequently perseverates on a word. When he reads he will say, "I want, want, want to go with Jill, Jill, Jill." He is not a stutterer. He shows no tendency whatever to stutter in his ordinary speech. He is making slow progress and still needs a great deal of individual help in his reading. He is able to write daily news using simple sentences. Recent psychological evaluations suggested that he may eventually reach a fourth-grade level in reading, but that his education should be largely vocational rather than academic.

All of these children were emotionally as well as educationally involved. Perhaps the least involved was Babs, though we can trace some of her problems to her relationship with an indulgent family and also with a somewhat demanding father. Jay's problem may be pri-

marily emotional, and Freddy's situation certainly has been highly emotionally charged in the past. Actually, the emotional environment is greatly conditioned by the attitudes of parents toward the child and toward his disability. Tension is built up in the parent and the tensions are soon reflected in the child's functioning. Aiding parents in resolving their own emotional problems is one of the first requisites in helping a disturbed child. This is easier said than done, but it cannot be avoided if solutions are to be found for the child. Each school or school system ought to set up suitable procedures for guiding and counselling parents so that if there are any among them who desire help, they will have a starting point for their search for a new beginning for their child and themselves.

Two of these children were seemingly intellectually involved. Children who are mentally retarded have short memory spans and lack ability to generalize. Teaching these children is more effective when it is concrete rather than abstract. Learning proceeds more efficiently when it is based on real experiences. However, it proceeds more slowly and requires more meaningful repetitions. Some educators of the deaf believe that it is not worth the effort to teach speech to mentally retarded children who also have severe or profound hearing impairments. I wonder whether the learning of language is not often really at the heart of the problem. Dealing in symbols is difficult for these children. As a result, they have difficulty in reading as well. Teachers of the deaf certainly ought to be well-versed in techniques for teaching slow learners if they are to meet the needs of the mentally retarded children in their classes.

Two of these children showed actual evidence of brain damage, while the premature child showed symptoms of organic brain damage. Until we learn much more about the functioning of the cerebral cortex and its complex pathways, we cannot be sure that brain injury alone explains the kinds of behavior exhibited by the children just described. Undoubtedly brain damage can be an important factor in learning disabilities. All educators will look eagerly to further research which will shed light on how teachers may deal with this complex phenomenon.

Language development in each of these children was retarded or delayed for different reasons. In planning a language program for a child with learning difficulties I believe we must consider the whole child and the milieu in which he functions. I feel that the teacher must provide an environment that first permits a child to find himself, an environment in which he can try out new experiences and one which encourages him to form meaningful relationships with other children as well as with adults. Second, she should provide experiences and promote situations in which there will be a need to communicate orally. The desire to talk cannot be easily induced in some children. Only when language becomes meaningful to a child and permits him to gain some control over his environment will he be able to build on his very slow beginnings and to make any progress toward what we think of as real oral communication.

Attempts to force children to speak are often discouraging. Therefore, even though we may try to work in a formal way with children to bring sound to their ears, which is meaningful to us but not to them, and to ask them to reproduce it, the only result can be frustration. It is necessary first to build up in the child a confidence in himself and in his ability to produce speech. Again, we cannot say that the superimposed will of the teacher is the thing which will determine whether the child will gain some language. I think that motivation is a factor which we often overlook in trying to help children to acquire a language sense.

If I were to generalize about teaching language to children who display disabilities, I would say that besides providing a stable and happy learning environment, that language has first to be broken down into rather simple forms before it can be put together into complicated wholes. I also think that these children must be taught through their own experiences. Every effort must be made to help structure the situation for the children so that they are not confronted with complicated materials which overwhelm them and which make their tasks much greater than they need be. Teacher-prepared materials are almost mandatory in working with these children. The teacher can prepare charts and, later, books. The kinds of books that are available are not the kind that these children can use. A clever teacher will be able to prepare her own readers for the first beginning faltering steps in book reading before sending the children on to the more complicated tasks of reading in books prepared for those who know language.

My plea is that a careful study be made of each child to determine his own particular needs and then proceed to teach him according to his own aperceptive level so that he may achieve, if not as well as most children, at least to his capabilities.

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PARENTS' SECTION, *Affiliate Groups*

Parents' Workshop for the Deaf
Phoenix, Ariz.

Deaf Oral Parents' Group of Line Ave. School
Shreveport, La.

The Parent Teacher Forum, Tucker-Maxon Oral School, Portland, Ore.

Oral Deaf Parent Teachers Organization
Grand Rapids, Mich.

Parents' Organization, Western Pa. School for the Deaf, Pittsburgh, Pa.

The Evansville Council for the Deaf and Hard of Hearing, Evansville, Ind.

The Clarke School Parents' Conference
Northampton, Mass.

Parent Teachers Association, St. Joseph Institute for the Deaf, University City, Mo.

Parents Study Group, Chambers School
East Cleveland, Ohio

Parents Group, Mill Neck Manor,
Mill Neck, L. I., N. Y.

Dallas Council for the Deaf
Dallas, Texas

Parent Teachers Association, Central Institute for the Deaf, St. Louis, Mo.

Parent-Teachers Club of the Junior League School for Speech Correction, Inc.,
Atlanta, Ga.

Parents Group, Univ. of Kansas Preschool for the Deaf, Kansas City, Kan.

Parents Group, Hearing Conservation Class, Mayfair School, East Cleveland, Ohio

Erie Association for Deaf and Hard of Hearing Children, Erie, Pennsylvania

Parents Study Club for the Deaf and Hard of Hearing, Adams School, Youngstown, Ohio

Parent Teachers Association, Sunshine Cottage, San Antonio, Texas

Parents Association, Lexington School for the Deaf, New York 21, N. Y.

The Mothers' Oral Club, Alexander Graham Bell School for the Deaf, Cleveland, Ohio

Parents' Section Wednesday A.M. June 25

Acting Chairman: Dr. George T. Pratt, Principal, Clarke School for the Deaf, Northampton, Mass.

The meeting, with approximately 50 persons attending, was called to order by Dr. George T. Pratt, acting chairman. Dr. Pratt sketched the background of education of the deaf in the United States and explained the basis for the proposed organization of parents of deaf children. A group of parents in Massachusetts had organized as individual parents of deaf children, and from their experience it was thought that a similar organization might work on a national basis. A petition proposing that such an organization become an integral part of this Association was presented at the 1956 Summer Meeting in Los Angeles. The Board of Directors of the Association was interested in the proposal, but felt that the major effort should come from the parents themselves, and that the group should be a supportive organization within the Association. A planning committee was appointed to achieve this end. The *Volta Review* printed an announcement of a tentative pattern for such a body and the Association had brochures printed and sent them to groups or individuals requesting them. At the time of the meeting 18 groups had affiliated and several others had indicated that they would join.

Dr. Pratt stated that some of the first steps to be taken in forming such an organization are the adoption of a constitution and by-laws and the election of officers. Mr. Isaiah Scheeline mentioned that an informal meeting of interested parents attending the Pittsburgh Meeting had been held on Monday evening, June 23.

Dr. Pratt called on Dr. S. Richard Silverman to express the views of the Association on the organization and functions of a parents' group. Dr. Silverman pointed out some of the things that might be expected from this group, such as: (1) regional parents' institutes, (2) financial assistance for teachers in training, (3) information for parents of deaf children and (4) a speakers' bureau to furnish lecturers to inform the general public. He also stressed the fact that everything cannot be perfect in the beginning, but that it is the direction of future efforts that will be significant. He expressed the hope that, in retrospect, this meeting might prove to be as significant as the founding of our great schools for the deaf.

Mr. Scheeline then presented a tentative constitution, which had been drawn up by Mr. Barnet Freedman, who could not be present. Each portion of the constitution was read and discussed and some amendments made. A motion to adopt the constitution as amended was made by Mr. Harold Donaldson of Pittsburgh and seconded by Mrs. Pauline Love of St. Louis. The constitution was unanimously adopted.

The proposed by-laws were read by Mr. Scheeline, and after some changes were made, Mr. George Fellendorf of Easton, Pa., moved their adoption. Mrs. Marvin Zelman of Cleveland Heights seconded the motion, and the by-laws were adopted.

Following the adoption of the constitution and by-laws, Mr. Robert Cole of New Hyde Park, N. Y. was elected president of the Parents' Section. Other officers elected were Mr. Donaldson, vice president and Mr. Fellendorf, recording secretary.

The next order of business was the election of a Board of Directors. Mr. Scheeline moved that, "The first Board of Directors be chosen from the first 15 affiliated parents groups with the exception of groups that are already represented by elected officers." The motion was unanimously adopted. Each of the first 15 affiliated groups were to be notified in order that they might each propose a member for nomination to the Board. The officers are to meet to receive the names presented by the affiliate groups and to take action as required by the constitution and by-laws.

CONSTITUTION

ARTICLE I — NAME

The name of this organization shall be the Parents' Section of the Alexander Graham Bell Association for the Deaf, Inc.

ARTICLE II — OBJECTIVES

The association shall be a non-profit, nonsectarian, non-political, interracial organization and shall have the same objectives as the Alexander Graham Bell Association, to benefit the deaf and hard of hearing, their parents, and those concerned with the problems of the deaf.

ARTICLE III — MEMBERS

Members of this section shall be both active and honorary. The rights and duties of such members shall be as provided for under the By-Laws.

ARTICLE IV — OFFICERS

There shall be such officers as the By-Laws may prescribe.

ARTICLE V — COMMITTEES

There shall be such committees as the By-Laws may prescribe.

ARTICLE VI—BY-LAWS

The By-Laws adopted by the section shall govern its membership, its organization, the duties of its officers, its committees, and shall contain such other provisions consistent herewith as may be deemed expedient. They may be adopted and or amended by a two-thirds vote of the members present at any biennial meeting.

ARTICLE VII — AMENDMENTS

These Articles may be amended at any biennial meeting provided that notice of the substance of the proposed amendment shall be contained in the notice of the biennial meeting. All proposed amendments shall be presented in writing, read by the Recording Secretary, and shall require for ratification a vote of two-thirds of the members present.

BY-LAWS

ARTICLE I — MEMBERS

Any parent may become an active member by subscribing to the Constitution of this organization and being a member in good standing of an affiliate group, or a member of Alexander Graham Bell Association who designates himself a member of this section.

Active members shall have all the rights and be subject to all the duties customary in parliamentary bodies.

Any person may become an honorary member upon recommendation and unanimous election by the Board of Directors.

Honorary members, although subject to no duties, shall have all the rights of active members except the right to vote.

ARTICLE II — DIRECTORS

The Board of Directors shall be composed of fifteen members elected from the section.

The elected officers shall be ex-officio members of the Board.

Section 1. — TERM OF OFFICE

The term of office shall be two years and shall end at the conclusion of the biennial meeting.

Section 2. — DUTIES

The Board of Directors shall recommend the general policies of the section.

It shall supervise all activities of the section.

ARTICLE III — OFFICERS

The officers of the section shall be a President, Vice-President, and Recording Secretary elected by vote of the members of the section.

The officers shall assume office at the termination of the biennial meeting and shall serve for a period of two years, or until their successors are elected and qualified.

A vacancy in any office may be filled by the Board of Directors at any regular meeting for the balance of the term.

The President shall appoint a Nominating Committee to consist of five members.

The Nominating Committee shall propose a slate of officers to be voted on at the biennial meeting, but this shall not preclude nomination from the floor by the membership.

Section 1. — DUTIES OF PRESIDENT

The President shall preside at all meetings of the section, and at the biennial meeting.

He shall be Chairman of the Board of Directors and preside at all its meetings.

He shall be a member, ex-officio, of all other committees.

He may call special meetings of the section boards and committees.

Section 2. — DUTIES OF VICE-PRESIDENT

The Vice-President shall, in the absence or incapacity of the President, perform the duties of the President.

He shall assume such other duties as shall be assigned to him by the Board of Directors.

Section 3. — DUTIES OF RECORDING SECRETARY

The Recording Secretary shall notify the directors and officers of all meetings and shall keep a record thereof.

ARTICLE IV — COMMITTEES

There shall be such standing and special committees as the President may appoint, and they shall exercise such rights and duties as the President may designate.

Committee Chairmen shall prepare individual reports for the biennial meetings.

ARTICLE V — MEETINGS

Section 1. — BIENNIAL MEETING

There shall be a biennial meeting, the date and place to be designated by the Board of Directors of the Alexander Graham Bell Association.

Section 2. — DIRECTORS' MEETINGS

Directors' meetings may be called on twenty days written notice, at the request of the President.

A special meeting may be called on twenty days written notice by the Recording Secretary on the request of six members of the Board of Directors, or upon petition of 20% of the membership of the section to the Recording Secretary.

Section 3. — QUORUM

At directors' meetings five members of the Board of Directors shall constitute a quorum.

Section 4. — NOTICE

Notice of the biennial meeting shall be given at the direction of the President not less than thirty days in advance of the meeting date, and shall be signed by the Recording Secretary.

Notice of any directors' meetings shall be given in writing twenty days before the date of the meeting and shall be signed by the Recording Secretary.

Section 5. — RULES OF ORDER

Deliberation at any meeting of the section shall be governed by parliamentary usage as interpreted by Roberts "Rules of Order, Revised" when not in conflict with the Constitution or the By-Laws.

ARTICLE VI — FINANCE

Annual dues of $1.00 per active family unit of each group shall be paid, but not less than $20.00 per group. Membership in the Alexander Graham Bell Association and the payment of $1.00 with designation of Parents' Group membership shall fulfill the financial requirements of non-group members.

ARTICLE VII — VOTING

Where an affiliate group votes, it shall be allowed one vote for each five members. Individual members may vote on a per capita basis.

ARTICLE VIII — AMENDMENTS

The By-Laws may be amended at any regular biennial meeting by a vote of the majority of the voting members present and voting in person or as representatives of their respective groups, notice of the amendment having been given at least 30 days prior to the biennial meeting.

Supervision

Wednesday, 9:00-10:30 A.M.
June 25

Chairmen: C. Joseph Giangreco, M.A., Assistant Superintendent, Iowa School for the Deaf, Council Bluffs; Genevieve Drennen, Assistant to the Director of Education of Exceptional Children, State of Illinois

Supervision in Australian Schools for the Deaf

JEAN WALTER

Miss Walter is Deputy Principal of the New South Wales School for the Deaf in Darlington, N.S.W., Australia.

First I feel I must tell you something about the delegation of educational responsibility within Australia. Education is the responsibility of each of the governments of the six states of Australia. This means that while there are many similarities in the educational structure of the states, there are also many variations. I will try to give you a general picture: Preschool education tends to be the province of private bodies (by preschool I mean nurseries for children under five years of age); through the infant, primary and secondary stages the government provides most of the schools, but private, usually denominational, schools exist at these three levels. At the tertiary level technical and teachers' colleges are mostly state-run, universities are independent of state or church jurisdiction, but are partially supported by state finance.

Within each state special educational provision varies. Most special schools are begun by chariable movements, but many become state-supported, if not state-controlled. Education of the deaf began in each state with the foundation of a charitable institution in each capital city. For many years—indeed until the Second World War—these schools provided the only education for deaf children apart from the Catholic school which served the whole of Australia. The original charitable institutions founded in each capital city are now all either fully or partly financed by the state governments and these schools, which take both day and residential pupils, still have the largest enrollment of deaf children in each state. As a result of the greater interest in the education of deaf children after the increased incidence of congenital deafness following the 1940 rubella epidemic in Australia, other types of educational provision have been developed. These vary from state to state, but are mostly small day schools or classes attached to ordinary schools. Sometimes separate hostels have been established for children attending these day schools or classes. Another Catholic residential school has also been established.

Supervision in state schools is the responsibility of the principal. Principals of the main larger schools for the deaf do not themselves teach classes and so are free for administrative and supervisory duties. In some cases the principal of the school is also the superintendent. In some states the deputy principal is also free for supervisory duties. Apart from the principal and deputy principal there is no use of supervising teachers within schools, as I understand is the custom within the U. S. A. In small schools, where there may be only two, three or four teachers, the principal teaches, as well as being responsible for the supervision and administration of the school. Special classes for deaf children come directly under the principal of the ordinary school to which they are attached. There is also supervision by a visiting teacher of the deaf who is either the principal of the main school for the deaf in that state or is a teacher expressly appointed in an advisory position

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to all such classes within the state. All state school teachers are inspected regularly by state government inspectors of schools. These inspectors are appointed as general inspectors of state schools and are unlikely to have had experience in education of the deaf.

The school with which I am associated is a day and residential school situated in Sydney and serving the State of New South Wales. It began as a charitable institution in 1860, and was in fact the first school for the deaf established in Australia. Two years ago the N.S.W. State Government assumed responsibility for the classwork and now employs all the teachers. The Royal N.S.W. Institution for Deaf and Blind Children is still responsible for the residential facilities for the children and the maintenance of the buildings. The school caters to children from the age of three to the age of 16 years, that is, for the whole of their schooling. The children are usually profoundly deaf, but some children with useful residual hearing are enrolled, if they are unable to attend the day classes for partially deaf children which are attached to ordinary schools in city areas and do not cater to country children.

The school has three main sections for instruction purposes: the nursery and kindergarten for children three to five; the junior or primary for children 6 to 12, and the senior or post-primary. There are about 150 children enrolled in the school. There is no larger school for the deaf in Australia.

The teaching staff employed by the state government for this school is 27; namely, the principal, deputy principal, 19 class teachers, 3 speech and auditory training teachers, one boys' manual arts teacher, and a needlework and a home economics teacher. The teachers either come to the school without any previous experience of teaching the deaf, and then work for an external diploma, or they come on completion of a special training course for teachers of the deaf provided by the state government at one of its teachers' colleges. The principal does not recruit his own staff, which is appointed by the state department of education. As the school is a special school, the principal is free to plan curriculum.

Supervision within the school is divided between the principal and his deputy. As a matter of expediency, the responsibility is divided so that half the staff is supervised by the principal and half by the deputy. This is determined according to particular interest. So, at present, the deputy supervises the younger classes and the principal the older classes. This is not a rigid division, of course, and both the principal and the deputy administer and supervise the school as a whole. As the principal happens to be a man and the deputy a woman, the principal tends to supervise the activities, apart from actual classroom work, catering especially for boys, and the deputy those for girls.

Supervision is surely the most important duty of the principal of a school, although it is also often the duty most easily allowed to slide because of the pressure of administrative duties and attention to routine and equipment. It is also the function of the principal often least appreciated by the staff, who may regard it rather as SNOOPERvision!

Supervision varies in respect to the different teachers. There is always the task of assimilating new staff members into the teaching body. These new members may be qualified and experienced teachers of the deaf. Supervision of such teachers is primarily to make them familiar with the policy and aims of the school and to help them settle into the existing framework, but at the same time enables them to make a fresh contribution because of their previous experience. Teachers coming straight from a training course for teachers of the deaf will need both to be acquainted with the policy and aims of the school and to be guided in programming and in putting into practice ideas gained in the course.

Those new members of the staff who have trained for ordinary teaching only and have had no previous association with deaf children will need much supervision—demonstrations, assistance with programming, reading suggestions, discussion of the special needs of deaf children, and guidance in studying to qualify as a teacher of the deaf. Supervision prevents a teacher feeling isolated, working without a knowledge of what other teachers are doing and of what place he occupies within the whole structure of the school. Supervision avoids too much trial and error method on the part of the teacher. It also means that there is less chance of a teacher feeling frustrated because he cannot attain a goal that may be unreasonably high, and also less chance of him feeling complacent because his children are doing well in work that is far below their level of ability.

Where recruitment of teachers is not in the hands of the principal, supervision is of very great significance. These teachers would all have applied to teach at a school for the deaf, but once they have commenced work it may soon be apparent to the principal that some are not suited to this special work. Others may be well-meaning but somewhat misguided in their ideas of what education of the deaf involves. Others, of course, will be good potential teachers of the deaf. The principal will need to see that those with promise develop as fully as possible in their usefulness. He will also need to supervise closely the unsuitable teachers and decide whether to recommend to the school inspectors that they be transferred back to ordinary school work.

Most teachers will gradually require less supervision the longer they remain on the staff, but some measure of supervision will always be needed in order to ensure coordination in giving the children the best educational opportunity possible. This includes the necessity to avoid teachers settling into comfortable little ruts! The main details in supervision seem to be:

1. implementation of curriculum
2. checking of programs
3. suggestions for teachers' reading
4. visiting classrooms
5. giving teaching demonstrations
6. conducting staff meetings and personal discussions
7. assessment of pupil and teacher

The school with which I work has a written curriculum which is revised from time to time by the principal, but I am now using the word curriculum to mean the content of the school instruction, irrespective of whether the curriculum is written or not; irrespective of whether the curriculum is laid down rigidly for the whole school or is merely a broad outline, or is planned at staff meetings for short term periods, or is largely unplanned. Whatever the system or policy is regarding the curriculum within the school, the primary function of supervision is to see that this is implemented within the school, that each teacher's activity is directed towards achieving the school's aims and is sufficiently coordinated to ensure continuity throughout a child's schooling. Such supervision should not hinder a teacher's individuality, nor should the teacher regard the supervision as infringement of the teacher's liberty. The teacher should have freedom of teaching, but freedom should not stand in the way of supervision. Ideally, supervision should mean such cooperation between principal and teacher that the principal's policy is carried out, but each teacher acts with initiative and originality in carrying out this policy. In actual practice, of course, this ideal often is not reached.

With new members of the staff, curriculum supervision will vary. For the experienced teacher of the deaf who has come from other schools, it is largely a matter of indicating the emphasis and the underlying principle of the curriculum, which may be rather different from those the teacher has been used to, or again may not be very different at all. For the teacher straight from a special training course, some conception of the integration of the curriculum and of the whole language aim must be conveyed, as well as an appreciation of the relative significance of various sections of the curriculum—or subjects or units or whatever one may wish to call them. Both the theory and the practice of the training course must be channelled into a comprehensive teaching program. When the teacher has come from ordinary schools and has had no previous experience with deaf children, it will be necessary to indicate how and why the school curriculum varies from the curriculum of an ordinary school, what emphasis is laid on language and speech and what is involved in helping deaf children approximate the standards of the ordinary child.

Supervision also includes the constant revision of curriculum. This revision will be a result of the principal being alert to the actual achievements of the children in his school, to the infiltration of new ideas by individual members of his staff, and to the impact of social and educational trends within the community as a whole. Decisions as to textbooks and types of materials to be used also influence curriculum and help maintain standards. These decisions must be revised frequently. The curriculum must have specific goals and standards, but at the same time be elastic and living.

In the state in which I work, written programs are required from each teacher, in advance, for each five weeks of the term. In any school where written programs are required, the checking of these programs becomes part of the job of supervision. With less experienced teachers this will include some assistance in the planning, in estimating how much might be covered in a set period, and how different subjects might be correlated.

Supervision should also include some suggestions for teachers' reading. Current books and periodicals should be added to the teachers' library and brought to teachers' notice. When new members of staff are also new to the field of education of the deaf, then specific reading lists should be given them. Where teachers are proceeding to examinations to qualify them as teachers of the deaf, much guidance and assistance can be given as to reading, as well as specific discussion and preparation with the candidate.

Visiting classrooms is, of course, one of the most important ways of carrying out supervision. Only in this way does the principal or deputy become really conversant with the work of his school. In both planned and incidental visits he can gauge teacher attitude, can see how the classroom is kept, whether routine is observed, and how consistent class teaching is. He can tell what behavior and working habits are being inculcated. He will notice what new material has been provided, what new charts made, and what standard of blackboard work is being presented. In conversing with the children, either for incidental or routine information, or as planned questioning, he will be able to assess their manners, their ability to answer questions, and their general standards of speech and lipreading. All this may be done even though

the visit may merely be prompted through attending to routine and administrative matters. His very way of speaking to the children and the standards he expects from them, in speech and in manners, may in themselves be a guide to teachers. At the same time, an inadequacy in deportment, or in language structure, or in speech intelligibility, may be noticed by a teacher only at a time like this when the teacher is observing a child, or the class as a whole, with some other person. This may apply particularly when the principal or deputy brings visitors into the classroom. In planned and systematic visits to the classroom, lessons may be observed and children's book work examined. Assistance with, and samples of, prepared classroom material may both help the teacher in a practical way and also further the implementation of school policy. Another important detail of supervision is the giving of demonstration lessons. This is of importance even to the teacher who has just completed training as a teacher of the deaf. Here the principal can show what is aimed for in method and presentation within the school. There will possibly be some aspects of the school approach or some subject in the school curriculum with which the newly trained teacher will not feel confident and so will welcome demonstrations. To the teacher who is completely new to work with deaf children, demonstrations will be essential in most lessons. Ideally, a full day's demonstration should give the new teacher some idea of routine, procedure and means of communication. Other particular lessons will be demonstrated at intervals. Again ideally, a demonstration of one particular technique should be given at a time and this should be followed a day or two later by the principal observing the teacher give a similar lesson. It is essential for us to remember, too, that the meaning of words we use commonly in our special field are not always obvious to newcomers—even simple words such as lipreading, speech, language, need defining. Often a period of demonstration is necessary, along with experience in handling deaf children, in order really to sort out both the distinctions and the overlappings in the meanings of such terms. So the content of the particular subjects for the class, the reasons for the inclusion of these subjects, the relative importance of each, and the interrelation between them can all best be explained through demonstrations over a period of time.

Staff discussion is another detail of supervision. This may be either in staff meetings or in personal conversation. In the staff meetings the principal or deputy gives a lead in discussion and so the teacher new to the staff learns more of the stated policy within the school, but at the same time discussion is tempered or extended by the participation of members of the staff. Much will be achieved also in personal discussion with the teacher, both in giving the teacher ideas and goals in education of the deaf and in affording opportunity for asking questions about specific problems. In actual practice, of course, most of the discussion in which the new staff member participates, or shall we say the dissertations to which he is subjected, will be over cups of tea—or coffee—in the staff rooms. Here he learns the views of the enthusiast, the fanatic, the rebel and the time-server. It is likely, too, that he will happen to fall in with, or will himself gravitate to, one or another of these groups. This should not deter the principal, but merely make him more careful to spend adequate time in personal discussion with the new teacher, in particular, by seeking opportunities for incidental or situational discussion. Here the teacher can best be shown to what extent he may put his own ideas into practice, to what extent the principal insists on the carrying out of particular directions, and, most important, his reasons for such directions.

The other detail of supervision which I would like to mention is called assessment. By this I mean, rather broadly, assessment of the pupils, of the teacher, and of the pupil-teacher relationship. This includes knowing both pupils and teacher personally, being conversant with pupils' work, checking the adequacy and accuracy of the teacher's records of his pupils, and so learning from these records. It also includes the design, implementation and supervision of whatever sort of testing program is considered necessary within the school. Assessment of the teacher also includes recognition of his particular gifts so that these may be utilized beyond his classroom and in the school activities as a whole.

In all, supervision must be regarded, not so much as direction and imposition from above, but as cooperation with and guidance by the principal. It should be designed to make the best learning situations possible for the child and so fulfil what must be the aim of education of the deaf, namely, fitting him to live as full a life as possible within this hearing world.

Discussants included: Elizabeth F. Titsworth, M.A., Assistant Superintendent, New Jersey School for the Deaf, West Trenton; Ann Mulholland, M.A., Associate Professor, Northwestern University, Evanston, Ill.; Eloise Kennedy, M.A., Principal, Primary Department, Illinois School for the Deaf, Jacksonville, and Alice Kent, M.A., Supervisor, Classes for the Deaf and Hard of Hearing, East Cleveland, Ohio.

Teacher Education and Recruitment

WEDNESDAY
10:30-12:00 P.M.

Chairman: Alice Streng, M.A., Department of Exceptional Education, University of Wisconsin, Milwaukee

Major Problems in Teacher Education and Recruitment

STEPHEN P. QUIGLEY

Dr. Quigley is Ford Fellow in Special Education, Institute for Research on Exceptional Children, University of Illinois.

Recognized leaders in our profession have addressed you in the past on the problems of teacher education and recruitment. So I am sure many of you are wondering why a relative newcomer to the profession is appearing before you to speak on the same vital topics. One reason is that I have been able, by means of a Ford Foundation Fellowship, granted by the University of Illinois, to spend the past year visiting a number of the well-established centers in the United States that are engaged in the preparation of teachers of the deaf. Perhaps a second reason is that I have been associated for several years with a state in which most of the problems of teacher education and recruitment are present. In that state, according to the January, 1958 issue of the American Annals of the Deaf, there are five centers for preparing teachers in our profession. Those five centers are listed as having a total of seven graduates for 1958, or an average of slightly more than one graduate per center.[2] This illustrates one of the major problems in teacher education: too many training programs in a single area with too few graduates.

This situation is not unique to any one state. In 1950, the American Annals of the Deaf listed 18 centers in the United States for the preparation of teachers of the deaf. This number has increased to 38 centers in 1958. There were 131 graduating students in the 18 centers in 1950.[1] In 1958, with 38 centers operating, there were 152 students listed as ready for graduation. Apparently, the increase of training centers throughout the country has not effectively increased the supply of trained teachers.

The subject of this presentation is the need for unified planning by our profession to eliminate, or at least greatly reduce, the present serious shortage of teachers, and to improve the quality of training offered to prospective teachers by some of our training programs. Such planning must be unified. It should be a joint effort by all of our professional organizations. It should represent, not only all of our organizations, but all kinds of interests within the organizations: the teachers, the administrators, the teacher-trainers, and the directors of state programs. This planning should be carried out on the state as well as on the national level, for the certification of teachers is a function of the state, and not of national associations.

It is our purpose to attempt to establish the need for this unified approach to the problems of teacher education and recruitment. We have many men and women within our profession who are capable of providing constructive solutions to the problems. We have the Committee on Teacher Training and Certification of the Conference of Executives of American Schools for the Deaf. We have the people who were appointed by the Alexander Graham Bell Association for the Deaf to set up standards for the preparation of teachers. And we have many men and women not on such committees who could offer much toward a solution of the problems confronting us. The present need is to bring all of these people together in a system of national and state committees for the purpose of devising ways and means to attract to our profession the teachers we need, and for the purpose of providing good facilities for the training of those teachers.

Teacher Education

Teacher education has been fully considered in the past by our professional organizations. The requirements established by the committees of this Association and by the Conference of Executives of American Schools for the Deaf for the certification of teachers and the accreditation of training centers are listed in the July, 1951 issue of the Volta Review[7] and the September, 1951, issue of the American Annals of the Deaf.[6] These requirements are well known to the people in our profession and there is no need to repeat them here. The requirements of the two associations are in essential agreement and cover most areas of the problem. There are three areas in teacher education, however, which merit further consideration: (1) the trend toward the requirement of teaching experience with normal hearing children as a prerequisite to the teaching of deaf and hard of hearing children; (2) the trend toward the establishment of training programs in colleges and universities rather than in schools for the deaf; and (3) the tendency on the part of some of the

training programs to refuse to apply for accreditation by our professional organizations.

The tendency on the part of some states to require experience with normal hearing children as a prerequisite to the teaching of deaf and hard of hearing children appears to have paralleled the growth in our day schools and classes. These schools and classes usually follow the curricula of the public school systems in which they are located. They also usually attempt to integrate their students, to varying degrees, with normal hearing children. The success of these activities depends to some extent upon the knowledge of public school curricula and the knowledge of the abilities of normal hearing children possessed by teachers of the deaf. It is proposed by some that the best means of acquiring such knowledge is through training and practice with hearing children in the public schools.

This proposition should receive careful study by our proposed national and state committees. The aid of research agencies should be sought in an attempt to obtain an unqualified answer. A study by Brill has indicated that prior training with hearing children appeared not to discriminate between "good" and "poor" teachers of the deaf.[4] Our committees should encourage a series of similar studies. If the committees obtain clear evidence that this is an unnecessary requirement, they should seek its elimination from the requirements established by the states for certifying teachers in our profession. If, on the other hand, this is definitely found to be a valuable requirement for all teachers of the deaf or for those teachers employed in day schools and classes, then definite recommendations concerning it should be included in our national standards for certification.

The inclusion of such a requirement might necessitate changes in some existing programs. Probably the major change necessary would be an extension in the time required to complete training. Four-year courses might need to be extended to five years. One-year graduate programs might have to require their entering students to be persons with training in the teaching of hearing children. There are many obvious objections to making such changes. It is important, therefore, that the merits of training with hearing children be fully evaluated. This training might prove not to be of real value for teachers of the deaf.

If we are to influence the certification requirements of the states in this matter, it is important that we have state committees on teacher education and recruitment. In the past we have sought to influence the certification requirements of the states through our national associations and committees. This has many disadvantages. The right to certify teachers belongs to the states. The states often are willing to seek the advice of national associations in establishing requirements for teachers. In some cases, however, there are local requirements to be met which are not considered by the national associations. It might prove helpful to have state committees on teacher education which could concentrate on correlating the standards of the states and the national organizations.

At present we do not have such committees. Our national associations do not have, as many national professional associations do, a system of state and/or regional affiliates. There appears to be a need for state organizations of teachers of the deaf such as the New York State Association of Educators of the Deaf. These associations could elect from their membership the committees on teacher education and recruitment that have been proposed. The elected committees could be affiliated with a national committee as the state associations could be affiliated with our national associations. They could provide us with a grass roots approach to the problem of certification standards in the states and to the other problems facing us in teacher education and recruitment.

The establishment of teacher-education programs in colleges and universities also appears to have paralleled the growth of our day schools and classes. Such schools and classes, being part of local public school systems, cannot maintain their own teacher-training programs. It is to be expected that they should seek their teachers from the same source as other departments of the public schools—from the teachers colleges and from the education departments of universities. The growth of training programs in these institutions has led to an increasing demand for personnel qualified to organize and conduct the courses of study. Obviously, such personnel should be trained and experienced in the education of deaf and hard of hearing children. There are other qualifications, however, which also are essential to successful work in universities.

Two such qualifications are: (1) the ability to teach at the university level; and (2) the ability to interpret, utilize and conduct research. Universities generally recognize the possession of a doctoral degree as the chief indicator of competence in these areas. This might seem unimportant, but it is not. If training programs for teachers of deaf and hard of hearing children in colleges and universities are to enjoy the same status as other university programs, the individuals conducting them must meet, not only the special requirements of their field, but the general requirements of the universities.

In the past, some colleges and universities have experienced great difficulty in securing personnel who possess both types of qualifi-

cations. As a result, they often have resorted to one of two practices. First, some universities have engaged the services of trained and experienced teachers who do not possess the degrees considered necessary for advancement in the academic hierarchy of a university. In this case, the rank, the status and the salary accorded to the individual often are lower than those accorded to the individuals performing similar functions in other programs, but possessing more advanced academic training. As a result, the status of the program for teachers of the deaf sometimes suffers. The second practice used by some universities is to employ individuals who have doctoral degrees and experience in fields related to the education of the deaf. In this case, the status of the program usually is maintained at the same level as that of other similar programs within the university, but the quality of training often suffers.

What our college and university programs need are persons who are experienced in the education of deaf and hard of hearing children, and who also possess the qualifications and advanced academic training necessary for successful work in universities. Our proposed committees could aid in the procuring of personnel in two ways. First, they could encourage experienced teachers in our profession to seek advanced degrees. It might be possible to provide the necessary encouragement through the awarding of fellowships obtained from national foundations. Second, they could investigate the possibility of establishing a national employment agency within our profession to serve as a meeting ground for prospective employers and employees. Such an agency could serve, not only for the procurement of personnel for training programs, but also for the procurement of teachers, psychologists, audiologists, social workers and other types of personnel needed by our schools for the deaf. This is not an impractical suggestion. Employment agencies are maintained by many professional associations and have been found to provide useful services.

By such means we could aid in staffing college and university programs. These programs are not going to fade away. They are here to stay, with or without the qualified personnel to conduct them. It would be to our advantage as a profession, and to the advantage of the children whom we serve, if we could aid the universities in obtaining the qualified staff members they need in order to provide good training for prospective teachers of deaf and hard of hearing children.

Leaders in our profession have expressed concern over the differences in the quality of training provided by the various training centers. Our associations have endeavored to insure uniformly high quality through the practice of accrediting centers which meet certain minimum standards. Some colleges and universities, however, will not apply for accreditation. One of their major reasons for this is that, if they allow one small organization the right to accredit one of their programs, they would be forced to grant the same rights to a host of other organizations. This is a valid objection and one we should make allowances for in our accreditation procedures.

It is possible that the universities would grant us the privilege of accrediting their training programs if we were affiliated with a large educational organization such as the National Education Association and sought to carry out our accreditation through that association or through the National Council for Accreditation of Teacher Education. The National Council for the Accreditation of Teacher Education is recognized by many universities and they often are willing to listen to its recommendations. Similarly, the NEA is recognized by many universities as being the major association representing teachers in this country, and its recommendations command respect. We could perhaps use this to our advantage if we were affiliated with NEA.

Our proposed national and state committees on teacher education and recruitment could investigate the desirability of our affiliating with NEA. Our profession is primarily educational in character. Most of us are teachers. It might be well for us to participate in the activities of the association which represents teachers in general, the NEA. Our affiliation might aid us not only in gaining acceptance of our accreditation procedures by most training programs, but also in solving the most serious problem facing us today, the problem of recruiting the people we need as teachers.

Teacher Recruitment

The problem of teacher recruitment demands our greatest attention. The teacher shortage has been with us for many years, and probably will be with us for many years to come. Its solution is not likely to result from the efforts of single individuals or single schools. It is a problem which requires organized and sustained effort by all members of our profession working through a system of national and state committees.

The recruiting activities of our proposed national committee could be greatly aided by our affiliation with an organization such as the NEA. We could solicit the aid of the vast resources of that organization in making known to the general public and to other teachers the special requirements and the special problems of our field. It could aid us in presenting the advantages of service in our challenging and rewarding profession. It could aid us in promoting a national campaign for the recruitment of teachers. All of these activities would be difficult for us to

promote alone, due to the small number of people in our profession.

Perhaps the most important function the national committee could serve would be to encourage the state associations which have been proposed to set up committees for the purpose of recruiting teachers. These committees could be affiliated with the national committee and their activities could be coordinated by that committee. They would serve the important function of carrying recruiting activities into the high schools and colleges where prospective teachers are most likely to be found.

Recruiting activities by the state associations probably would vary somewhat from state to state depending upon the local situation; however, there are some activities which might prove successful in most states. These activities all are based on the assumption that successful recruiting requires the establishment of direct contact with the individuals whom we wish to interest in becoming teachers. First, the state committees could initiate a mail campaign to all of the high schools and colleges within their respective states. This should include literature describing the profession of teaching deaf and hard of hearing children and describing the facilities within the state for the education of those children. It also should include literature on the teacher training facilities throughout the country and particularly on those closest to the individual state. The training programs should be active participants in the recruiting. Second, the mail campaign should be followed up by sending speakers to speak to interested groups of students on the education of deaf and hard of hearing children. These speakers could appear before Future Teachers of America groups, at the Career Day conferences held by many high schools, and before any other groups of students who expressed interest in our profession. The speakers for such occasions could be provided by the state associations or obtained from outside the state through the auspices of the national committee. Third, all students who expressed interest in teaching deaf and hard of hearing children should be invited to visit the educational facilities provided for those children within the state. At such visits the students should be acquainted with some of the special problems of our field and with some of the special challenges and rewards it offers to individuals.

These are only a few of the recruiting activities that could be conducted by state associations. The associations could devise many others. Concerted action by these associations could provide many teachers for our profession.

Conclusion

The major suggestions have now been presented. It has been proposed that a national committee on teacher education and recruitment be formed. This committee would include members from all of our professional associations, from all areas of interest within the associations, and from all regions of the country. This national committee could initiate a thorough study of all the problems facing us today in the education and recruitment of teachers. It could investigate ways and means of solving those problems. It also has been proposed that the national committee foster the development of a system of state and/or regional associations of educators of the deaf. These state associations could elect committees on teacher education and recruitment similar to the proposed national committee and affiliated with it. They would seek recruits for our profession where they are most likely to be found, in the high schools and colleges. There are many capable people in our profession who could initiate this planning and transform the planning into action. We propose that those people be brought together and provided with the facilities they need to solve some of our problems of teacher education and recruitment.

1. *American Annals of the Deaf*, 95, 1950, 173-174.
2. *American Annals of the Deaf*, 103, 1958, 160-165.
3. Brill, R. G., "The training of academic teachers of the deaf," *American Annals of the Deaf*, 96, 1951, 282-287.
4. Brill, R. G., "The educational preparation of oral teachers of the deaf," *American Annals of the Deaf*, 97, 1952, 313-327.
5. Brill, R. G., "A survey of credential requirements for teachers of the deaf in the United States," *American Annals of the Deaf*, 100, 1955, 321-329.
6. Committee on Teacher Training and Certification, Conference of Executives of American Schools for the Deaf. *American Annals of the Deaf*, 96, 1951, 407-409.
7. "Preparation for teachers of the deaf," *Volta Review*, July, 1951, 302 ff.

PANEL DISCUSSION: Dr. Rachel D. Davies, Associate Professor of Education, Kent State University, Kent, Ohio; Dr. Louis DiCarlo, Professor of Audiology and Speech Pathology, Syracuse University, N. Y.; Lucy Moore, M.A., Assistant Professor of Speech and Teacher Education, Michigan State University, East Lansing; Thomas Poulos, M.A., Principal, Michigan School for the Deaf, Flint.

Mr. Poulos said he thought that personal contacts with persons and organizations and the use of such media as movies and television were effective recruiting devices. The state school he represents has attempted to solve its recruiting problem by awarding parttime assistantships to student trainees. Each pays the student trainee about $1,200 per school year. College work taken on the campus is

fully accredited and accepted by the nearby colleges and universities. This work completes their 3rd or 4th year of college credit toward their bachelor's degree. Promising students are urged to return as teachers following their graduation.

Miss Moore detailed the difficulties of establishing a new program of training teachers of the deaf in a university. Securing approval of a program by many university committees, negotiating with cooperating departments for the establishment of courses and arranging with agencies beyond the university for student teaching facilities may take as long as two years. Only then the search for students begins. Miss Moore observed that the students received free room and board at the Arkansas School for the Deaf plus $1125 a year from the fund for the advancement of education of the Ford Foundation's experiment in teacher education. In 1953-55 there was no trouble in securing recruits.

Dr. DiCarlo felt that cultural forces are effective in determining what young people will choose as their profession, and that until the profession of teaching the deaf gains more status young people will not be attracted to it. Other areas of exceptionality are much more advertised, exploited and even supported by research funds than the education of the deaf has been. In fact, there is hardly any money available for research in our field.

He went on to say that he thought a five-year program of training teachers of the deaf is no more effective than a four-year program. What is important is the sequence of learning experiences and preparation for the professional year. He stated that a five-year program at this time at his university would reduce the number of students very drastically and that our solution to finding teachers does not lie in making it more difficult for students to complete their university education.

Mrs. Davies suggested that a great resource is overlooked when parents of deaf children are not used as an integral part of the program of providing teachers for deaf children. She suggested a parent training program as a means of supplementing in the home the work done by teachers in school. Joel Saunders, a 9-year-old deaf boy who attends a regular 4th grade, and his parents were introduced to the audience. Mrs. Davies credited Joel's parents with his progress and success.

Mrs. Davies agreed with Dr. DiCarlo that four years was an adequate length of time for the preparation of teachers of the deaf. This preparation at Kent State University includes student teaching with normal hearing children and leads to dual certification.

Members of the audience seemed receptive to the idea that some national organization for recruiting be explored. Dr. Silverman suggested that he would welcome discussion of the matter at the business meeting.

Town Meeting

Wednesday P.M.
June 25

Chairman: Dr. Leola Horowitz, Director, Speech and Hearing Clinic, Adelphi College, Garden City, N. Y.

Relationship Between the Educator and Parents of Deaf Children

PAUL ROTTER

Mr. Rotter is assistant superintendent of Lexington School for the Deaf.

All parents seek to find and maintain basic values in their quest to adjust to the times and environment in a manner that will be realistic as well as comfortable. The educator stands ready to assist the parents of the deaf child in achieving his goals. However, the possibilities of reaching the summit are tempered by the educator's attitudes and actions in at least three areas.

It is essential that the educator have a sensitive understanding of the parents' problems. As teachers, we must recognize the fact that parents do want to learn. This naturally leads to the need for the development of a suitable plan of parent-educator action which will guide parents toward the point where they can face their problems head-on and come to intelligent decisions.

The sympathetic educator is aware of the initial shock to the family when discovering that they have a deaf child. This situation is often difficult to accept and results in varied feelings of helplessness and disbelief. Unfortunately, those families needing help usually find themselves wasting considerable time, effort and money seeking cures, treatments and satisfactory educational environments.

In their eagerness to meet their child's need, the parents (and their deaf children) are exposed to many experts in the areas of speech, hearing, medicine and education with sometimes confusing or frustrating results. This is especially so when the philosophies of the various disciplines are in conflict.

Educators of the deaf have long recognized the fact that parents of deaf children need assistance in guiding their children's development and growth.

For many years, correspondence courses such as the one now offered by the John Tracy Clinic have been supplied without charge to parents of preschool deaf children. The professional organizations in the field have also been making inexpensive or free reprints available to the public.

Some schools for the deaf provide special parent seminars during vacation periods in addition to their regular parent meetings during the school year. These classes are usually open to parents of children too young to enter school, as well as to parents of enrolled pupils.

I shall now describe the program of the Lexington School to help parents of the deaf to answer some of the questions which confront them. Some questions are probably unanswerable, some we do not know how to answer, some have multiple answers. In all cases, the family situation will influence the answer.

At Lexington, the staff has been aware of the parents' needs since the school was first organized in 1867. Although the fundamental aims of the parents' program have remained practically the same, the activities and services offered are flexible enough to vary as necessitated by the different parent groups and the individuals involved.

The school makes professional personnel available to counsel individuals or groups seeking information related to the problems of deafness. Through tours of the school, the distribution of literature, individual conferences and lectures, our basic philosophy and program are integrated or explained to those seeking aid.

Parents requesting enrollment for a child are given individual appointments to provide them with opportunities to discuss their problems with staff members representing the various departments within the school.

This year as a result of a number of informal discussions in which staff members and parents participated, an experimental program was instituted for new parents of nursery school children.

Four "new" parents have been coming to school on alternate pre-arranged days to work in the nursery school under the nursery teacher's supervision and guidance. This program has been carefully planned. The parents, who were volunteers, were carefully briefed as to their responsibilities and the aims of the program. It is the mutual desire of those participating in the experiment that the parents will thus acquire a better understanding and acceptance of the philosophy of the Lexington School, gain insight into the problems of deafness and generally develop a more satisfactory relationship with their children through the application of our educational objectives outside of school.

At a time when teacher shortages are apparent, I believe I should state that this experiment is not aimed at preparing parents to be teachers of the deaf nor do these parents fill the role of substitute teachers.

The school provides two visiting days for parents to have individual class observations during the school year. All staff members are available for parent conferences at the parents' request during a mutually convenient time.

The Lexington School Parents' Association also serves as a means for parent-educator cooperation. This is a self-governing parent group. The association elects an advisory council, which functions with the guidance of a faculty coordinator, as the policy-making body. An appointed committee plans meetings to meet the expressed needs of the membership using guest speakers, teachers and children who are invited to participate. This year, four of the 20 meetings were scheduled on Sunday evenings to make it more convenient for fathers and mothers to attend.

To reach parents unable to attend meetings and to aid each other, the parents publish a monthly newsletter which contains articles written by parents, teachers and friends of the deaf. A committee of parents is also responsible for the maintenance and circulation of a fine library which includes pertinent books, pamphlets and reprints.

A discussion of parents' aims and needs led to a description of an informal but carefully planned course of action developed by professional educators at the Lexington School for the Deaf to help parents solve their problems.

In a talk given at the New York Academy of Medicine, Dr. Clarence D. O'Connor described most accurately what occurs when educators and parents work toward a common goal. He said:

". . . it is most interesting to observe the subtle transformataion that occurs as they (the parents) slowly build a new philosophy. Fear, frustration, and despair dissolve in the face of renewed hope and confidence. Pride in their deaf child replaces their former haunting pessimism as to his future. Gradually, they (the parents) arrive at a point where they can say to themselves, 'This is my child. True, he is deaf, but his deafness is purely incidental. He is happy, healthy, intelligent and I know that life's doors of opportunity will open for him just as they would for any child.'"

Parents and the Specialists

H. LATHAM BREUNIG

It is a rare privilege to be included among this group of specialists. The only justification for my being here is perhaps the fact that I have spent a good many years trying to be a specialist in practicing some of the things that my fellow panelists preach.

Dr. Silverman's presidential address pointed up some of the problems which must be faced in training and evaluating deaf children in attempts to prepare them for active participation in a hearing milieu. He further stated that educators of the deaf have experience which it is difficult to document scientifically, but that they do have convictions based upon their experience. With this precedent I shall make no apology for offering undocumented convictions of my own.

June Miller's paper Monday afternoon suggests that deaf children are blessed, by and large, with intelligence comparable to that of their hearing peers. This they are born with. It gives them varying potential for achievement. Mildred Templin finds that the development of speech and language is related to the socio-economic background of the child. This plays an important part in the development of potential.

Your concern as parents, then, is the accurate assessment and full development of the inherent capability of your children to adapt themselves to life among the hearing. To this end, you come to work closely with the several specialties such as these represented among my fellow panelists. Upon them you come to depend for your knowledge of deafness and what can be done about it. And furthermore, you want to pass this knowledge on to the uninformed. As Dr. Silverman mentioned, you may depend heavily upon a small circle of specialists associated with a particular school or center. However highly trained and well motivated these specialists may be, each will possibly represent only a particular point of view in the education of the deaf.

One of your greatest opportunities through the organization of this Parents' Section would appear to lie in broadening the base of knowledge which your members possess concerning the education of the deaf. With greater comprehension of what can be done for the deaf, and of what the deaf themselves can do, you may more intelligently and realistically assess the potential of your own child.

Another point in Dr. Silverman's address deserves mention. He suggests that there are fewer dedicated teachers than formerly—that education is by committee. In this connection, I would mention a definition of committee which I once read. It is, "The unwilling appointed by the unable to do the unnecessary."

While this facetious description in no wise applies to the educators of the deaf, it does imply a loss in the dedication of which Dr. Silverman spoke. Who, then, will apply the dedication to the welfare of the deaf child in order that he may achieve his potential? The answer would appear to be "his parents," who have set for themselves the acquisition of a sound comprehension of the methodology and aims of the specialists. In this connection, it would appear useful for each school to present annually a one-day "short course" covering several aspects of the education of the deaf. A parent who attended short courses at several schools would certainly acquire a rather broad viewpoint.

In the assessment of the deaf child and his potential, there would appear to be at least two major pitfalls which the parent must beware. These are: hybridized communication, and inadequate motivation.

Time does not permit me to dwell at length upon these points. Concerning the first, I will say only that it is my firm belief, and my experience, that lipreading and speech, the tools which the deaf child acquires, and requires, for communication with the hearing can be kept at maximum efficiency only through *exclusive* use throughout all the days of his life.

The other pitfall is exemplified by the following quotation from John A. Klein, Executive Director of the Evangelical Lutheran Institute for the Deaf, writing in the *Journal of the American Osteopathic Association*, in April, 1953:

> Many parents entertain the hope that their deaf children some day will be able to secure a so-called white collar job. Since this isn't probable, however, it is well to acquaint parents with the fact that only a small percentage of the deaf enter the professions such as engineering, accounting, chemistry, et cetera.

Of course it won't be probable if people in positions of responsibility expound such negative doctrines. Mr. Klein also states:

> The teachers must impress upon the children, and their parents, too, that deaf people, in most instances, gain their livelihood by working with their hands.

Isn't deafness enough of a curse, without adding the curse of Joshua? "Now therefore you are cursed, and there shall none of you be freed from being bondmen, and hewers of wood and drawers of water for the house of my God." (Joshua 9:23)

What the deaf child needs is not this negative, unenthusiastic approach to his potential, but a positive, dedicated motivation. The educators say, "We must be realistic." If this be realism, I want no part of it. We realize, of course, that not all children, deaf or otherwise, are capable of equal achievement. But I would certainly hate to see such

inadequate motivation infect and deter those deaf young people who are capable of enrolling in high schools and accredited colleges with their hearing contemporaries, and of making places for themselves among the hearing. The economic rewards and satisfaction in achievement are great. Many have done it. We are in touch with each other, and hope some day to organize as you parents have done.

To summarize, then, parents of deaf children, banded together under the aegis of the Alexander Graham Bell Association for the Deaf, have a marvelous opportunity to acquire broad, authentic knowledge concerning the ways of the specialists, by which you may accurately assess the potentialities of your own children, and which you may pass on to the uninformed. And you can work with each other in developing the responsibility for instilling in your own children the motivation for expanding their potential to the fullest.

The Relationship of the Speech and Hearing Center to the Parent of the Deaf Child

BEATRICE JACOBY

Dr. Jacoby is associated with the Speech and Hearing Department of Queens College, New York.

When we talk about the development of speech and language skills of the deaf child, we first assess the communication skills of the child, then outline a program of speech and language habilitation and establish specific goals.

The relationship between the center and the parent must involve two people and only two people at a time. They must each take responsibility for understanding the content of the conversation.

A parent talks most frequently to a clinician or a therapist in the center; in some instances to the psychologist in the center; and occasionally to a supervisor or the director. Each time the parent turns to another agency for help, the number of communication lines is increased not by one, but by the total number of participants. The more consultants you have, the more complicated is your communication system.

It should be obvious to us, then, that the more complicated the network becomes, the greater are the number of breakdowns or interferences that can manifest themselves.

The difficulties that arise in the relationship between parent and center, however, are not only due to the fouling of numerous lines. They are bound to exist because of the nature of language itself. When people talk to each other they send out at least two messages simultaneously. The messages may reinforce each other or they may conflict with each other. The sender may or may not be aware of two messages. Most frequently I would say the sender is unaware of sending conflicting messages. The alert receiver should always expect two messages and should be able to decode them. When the messages appear to be in conflict with each other the listener must check on what is fact and what is fiction—on what is denotative and what is connotative.

Sometimes you need listen only to an inflection of the voice; or to watch an eyebrow move up or the corner of a lip to move down; or wait for a further explanation. A few weeks ago the mother of a deaf boy told me how hard she and her husband had had to work in order to get their son into a prep school. The boy was an A student at the local elementary school for normally hearing children. She summed up her evaluation of the situation with the one word, "People," and let the slightest smirk appear at the corner of her mouth. The other day this same mother described the graduation exercises that had taken place at the school the night before. As each student walked to the platform to receive his diploma the audience applauded. When her son's name was called the applause was louder and longer than for any of the others. She said, "People," and smiled and we both thought, "People are wonderful."

At times you need to do a great deal of probing to find out what is fact and what is pleasant concealment of a fact. A teacher sends home a report card that says Johnny is doing as well as can be expected. If you take that for a single message you may be very surprised the day that you are told that Johnny is not to be promoted with the rest of his class.

Perhaps I can help you to understand what I mean by telling you of an incident that occurred recently. Two women came to see me about procedures to follow in order to enroll in the teacher-education program at Queens College. Both were mothers. One was a normally hearing mother with a deaf child. The other was a deaf mother with a normally hearing child.

The deaf mother was a graduate of the Lexington School for the Deaf and of Gallaudet College. She wished to pursue her training. She described her experience, her present qualifications and her goals in unambiguous language. She understood my statement of the restrictive covenants that were part of free higher education in the state. She thought they were unfair to a deaf person. And she said so, directly. Her messages, denotative and connotative, reinforced each other. There were no significant barriers to communication between us despite the fact that she had *no usable hearing.*

On the other hand, communication between the normally hearing mother and myself was not as easy nor as successful. I am sure that I did not get my ideas across to her. She sent me conflicting messages. Our conversation included such bits as the following:

MOTHER: You know I have a daughter who is deaf.

ME: Yes? How old is she?

MOTHER: She's 14.

ME: What school does she attend?

MOTHER: She doesn't go to school. The schools for the deaf were not able to teach her. My friend (*she pointed to the deaf mother*) teaches her. She has done a wonderful job. She has taught her how to read.

ME: At what level does your daughter read?

MOTHER: She reads very well. And my friend, here, is responsible.

ME: Yes, I understand. She reads well. Does she read as well as other 14-year-olds? Or 12-year-olds? What is her reading level?

MOTHER (*to friend*): Would you say that Dorothy reads well?

FRIEND: Yes, she reads very well.

MOTHER: At what level does she read?

FRIEND: I would say at about the second grade.

A pause ensued during which the mother seemed to be looking for an encouraging word from one of us.

MOTHER: Don't you think she really is at about the third grade?

FRIEND: I would say she is between the second and third grade.

This mother was unable to look at her daughter objectively. She could not bear to face the problem without crying. She did not want to cry. So she hid her tears behind a variety of words. This interfered with her relationships with others who were trying to help her. Since she could not face the problem she could make no assessment of the youngster's strengths and weaknesses. She did not understand the totality of the handicapping factors. She did not accept her child nor her child's handicap. Her statement, "I have a deaf child," carried two messages to me. The hidden message was, "I have a bright deaf child."

What made the incident so dramatic to me was the contrast in courage between the two women and the contrast in their methods of relating to me.

Other panel discussants were Dr. Sidney N. Bussis, otologist at the University of Pittsburgh and Margaret Brennan of the Pittsburgh Child Guidance Clinic.

Dr. Bussis discussed the importance of the family physician in caring for the deaf child, and contrasted his duties with those of the otologist.

Miss Brennan discussed some of the behavior traits found in deaf children and the reasons for them. She explained that parents always face unprepared the situation of having a handicapped child. Above all, she emphasized, parents must accept the handicapping condition and not blame themselves for their child's problem.

Speech — Thursday, 9:00-10:30 A.M. June 26

Chairman: Dr. June Miller, Educational Director, Hearing and Speech Department, University of Kansas Medical Center, Kansas City

Acoustic and Visual Language Communicating Systems

REV. BERNARD TH. TERVOORT

Rev. Tervoort is associated with the School for the Deaf, Sint Michiels Gestel, The Netherlands.

Human beings have contact with one another in many different ways. Language psychology deals with a special type of contact behavior—the contact behavior by means of a structured system of symbols. It is the task of language psychology to describe and analyze this special type of behavior. But, there is one aspect which language psychology does not cover—the description and the analysis of the symbols themselves and their systematic interrelation. This is the field of linguistics. Psychology deals with behavior which finally finds its way to character, intelligence and personality; linguistics deals with the structure of language—the tool used by human beings in a very special kind of behavior.

Sometimes this distinction in theory can easily be maintained in practice. But sometimes the distinction between the two disciplines, language psychology and linguistics, is not so easy to carry through. The use of the symbols is part of the contact, and both linguists and psychologists have to know the whole of contact first, before each of them knows where his own field starts and ends. Part of the contact will be built up accord-

ing to grammatical principles of some kind, and part of the contact will escape any linguistic categorization. For the English grammarian this would not be such a problem, but for the linguist doing field work in the Equatorial African jungle it can and has been a real problem. What is language, and what are just accompanying features?

In the contact behavior of young deaf children among themselves, the linguist meets his own puzzling blackboard jungle. Certain aspects of behavior definitely serve the social contact, but to what extent are they given an opportunity to be gathered together in a grammatical description, and where do they escape such a possible application of linguistic rules, leaving the field to language psychology and the study of behavior only? Is there linguistic regularity in all this gesturing and mimicry, these expressive movements and bodily postures, these melodies and exclamatory voice-givings, this changing and shifting of attitudes, and this display of hands and eyes? And before he starts his field work among deaf youngsters, as I did with my movie camera for three years, the linguist becomes a philosopher thinking about the different life of these little deaf children. For a few minutes I would like to take you along in this thinking, before I start making applications which will bring us to the field of linguistics again.

Human beings have contact as persons to persons, but they always start this contact through the sense organs to finally end up in reaching the brain, the mind, the intellect, the heart, the soul, or whatever you like to call it. Eye and ear apparently are more suitable than the sense of touch, taste or smell to serve the higher, more symbolic means of contact. And in its history, mankind chose the auditory symbolization for the highest human interrelation possible—for the contact by language. In language man has built up a multi-dimensional and highly refined symbolic system, which can serve all the levels, depths and heights, needs and requirements of mankind, of the hearts and the heads, the feelings and the thinking, of science, religion and love. And one asks oneself: why is this contact based upon sounds, why the acoustical and not the visual cooperation and togetherness in symbolic behavior? Apparently the prehistoric choice has been the right one, for mankind sticks to it, and only you and I, as teachers of the deaf, fully realize the consequences of this choice.

The reason must be that the ear is the organ most suitable for this contact. Let me try to give you some arguments. The ear cannot be closed like the eye, and has to do its work as long as one is conscious. The ear is the organ of all directions and dimensions, while the eye commands only the world which one faces. The world of the ear is in front of me, but also behind me, under and above me, to my right and to my left. So the ear does not require the turning of the head towards the speaker. The ear, in opposition to the eye, is the organ that works equally well in the dark and around the corner, from another room, through the wall, and behind the cover of trees or rocks. The ear is the better contact medium between the individual and the group, and between the individual and every member of the group. As far as the voice carries and the ear picks up, the contact is as refined and distinctive as the contact between two individuals only. With the eye, contact becomes more distant and indistinct with every newcomer who enlarges the group. The ear also is the organ which perceives the message, made loose, abstracted from the speaker, as an interrelational entity between speaker and listener, while the eye necessarily perceives message and messenger in one concrete perception of the person. Furthermore, while the eye is the organ of space, distance and limitation, the ear is the organ of closeness and extension all around: I am in this locality and the walls and objects at certain distances limit my visual perception, but my voice is everywhere, fills the room and is close to every one of you. What you and I see is at a distance, distinct from the limits of our bodily selves, but what you and I hear is all around us, even in us. And so the eye is the organ of the *there*, the ear is the organ of the *here*. Finally, while the eye is the organ of light, color, dimension and space, the ear is the organ of sound, succession, and time. I want to explain this final distinction a little further.

The eye perceives the world in front from a distance and in a global way as the presence of all things which are there; and in a distinctive way the structure of all things present. Norm for the eye is the distinctive visibility of the colored and outlined qualities; and the typical characteristic of the eye is the simultaneity of the perception. Things are perceived in their special distance or closeness, and in their distinctive color features and geometrical compositions. The ear, however, perceives the world all around, not from a distance, but as part of the perceiving person, in an identification and distinction at once. The ear does not perceive globally all the things present in space at once, but perceives the sounds of the world around in succession. The simultaneity of the eye becomes the succession of the ear. So the ear is the organ of time, for perceiving the world of sound in succession, the human being can measure the time in a before, now and thereafter. And as such the ear becomes the outstanding organ of relations. The eye is the organ of simultaneous composition, but

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the ear is the organ of the measured before and thereafter, the succession where something comes first and another thing later, but both connected with each other. This, to my opinion, is the final reason why a highly cultured and sophisticated society during centuries stuck to the symbolic contact based upon sound. For this type of contact best suited the intellectual pathways of human thinking in all its depths and heights.

We must gather together our thoughts and come to the point, our point. We are dealing, are we not, with a group of human beings, who—because of said circumstances—lack the organ of hearing with all the catastrophical consequences included? Forgetting for a moment the residual hearing in some cases, and talking about the assumed pure case only, we truly can say that we have to help and to educate visual beings. To many the deaf are the most handicapped children in education, for by themselves they lack society's most vital means of social relation—the system of communication itself, a system based upon sound and hearing for the reasons described above.

And now, in our education we could go two ways: we could try to teach our acoustic system to these visual beings, or we could develop a visual system that suits these beings best. History has tried both, but present convictions are in favor of the first. Rather than educate the deaf in a system relatively easy to acquire by the teacher and very easy and natural for the pupil, this century has made its choice more and more for the hard way. For that easy system, though educating the deaf to be intellectual beings, good citizens and honest Christians, marked them for their lifetime as totally different; and it closed the door to the contact with the hearing world in a very definite way. And this last point was the reason for the other choice. Not the better means of education in itself for there can be little doubt, I think, that in itself the manual method, with its excellent distinctive visibility of the symbols, is the best means of communication for and among visual beings, whose contact behavior purely and exclusively depends on this distinctive visibility. However, this is strictly a theoretical statement that should not be misunderstood. I am not in favor of calling back De L'Epee and Sicard from their graves or their seats in heaven. For practical reasons, but for absolutely necessary and strictly basic, fundamental reasons, we have to educate the deaf as we do. In other words, there is a general agreement that an easy preparation of the deaf pupil for the small, isolated island of manualism is out of the question; and that a preparation, hard on the teacher and pupil, for meeting the hearing world is mandatory. We cannot make this world visual-manual; we therefore have to make the deaf child aural-oral, to the extent that our capacity, conviction, teaching

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method and the child's potentiality allow. There may be different convictions about the extent and the method applied, but in general one can make this statement, because it is backed by everyone. But let me, as a linguist, consider some consequences of this conviction, and finally mention the work I am doing and hope to continue.

First of all, we can never deny that our children are deaf. We have to deal with human beings, who for their means of contact are purely visual or mainly visual even when helped by some residual hearing. You will understand that I am not talking about the hard of hearing, and that I am by no means denying the help of equipment for every deaf child. But I still say: we have to deal with a visual being, if you wish, a kinaesthetic, motoric, vibratory, visual being. And this has its linguistic consequences. For, what do we ask from our deaf children?

We ask of them, in the course of education, to adapt themselves to and to become thoroughly familiar with a symbolic system of communication which is based upon sound-giving and sound perception, which is structured in time, succession and relation, and with which the children are basically and totally unfamiliar. And we do so without adapting that system in any way to these children's needs or capacities. I am making this statement not as a psychologist, but merely from a linguistic standpoint. We have to act the way we do, and it is a mere miracle of achievement by teacher as well as by pupil that we succeed.

Speech is voice-giving and modulating this voice-giving with the speech apparatus. How this apparatus functions and moves, especially tongue and lips, is of no importance in this system, but it becomes functional, even vital for the deaf child, whose perception depends upon visibility. And yet, the poorly visible small lips carry all the clues for the communication, without our being able to enlarge this visibility. There are secondary helps, yes, like simultaneous finger spelling, signing, vowel and consonant gesturing, but they are foreign to the lips themselves, which remain the essential symbol carriers. They only confess the insufficiency of the labial visibility; and they, according to many in the field, take away the necessary attention from the lips, to the extent of taking over the task of the mouth in a way that endangers the contact of becoming manual again and therefore unsuitable for the primary purpose of meeting the hearing world. Again, I do not want to be misunderstood. I am as much in favor of lipreading and its extensive training as any one of you, but I want to point out its extreme difficulty from a linguistic point of view. I might add my conviction that the secret of success lies in an early start because of the sensitivity of the first years of life, and especially in the feedback given to the child by watching his own movements in the mirror, and comparing them with the teacher's movements constantly.

Point two, and equally hard on teacher and child, is speech. We ask from the child without ears, and who is all eyes, to forget about his vision and to give voice, to modulate and to characterize this voice into vowels and consonants. But you can figure out by yourselves, from daily experience, what it means to teach sound in a soundless world, and to children who cannot control, correct and improve their speech with their ears, because they do not have the necessary feedback. Again here the greatest help is the usage of the early years, reserved by nature for the onset of speech, and again here the best tools for the teacher are the other possibilities of contacting the speech by the supplementary feedback from the eyes in the mirror; the motor system in breathing control; the kinaesthesis in consciously coordinated muscle control and the vibratory experience in feeling the thrill of your own sound organ at work.

The third linguistic consequence of our choice in favor of the present methods is the most serious one, and you will understand that we finally have arrived at the structural linguistic problems, the struggle with grammar and syntax, with language, that is so well known to you as the hardest problem to cope with in teaching the deaf. I want you to recall what I said about the eye and the ear as different sense organs of contact, to fully understand what I mean to say.

We ask people whose contact organ is the eye, whose basic norm is distinctive visibility, and whose contact system by nature therefore is built up in simultaneity, globality, and measuring on distance, to enter a contact system based upon distinctive audibility, and built out into a symbolic system of succession in time, distinctive befores, nows and thereafters, and in relations—which during centuries have followed all man's thinking, loving and praying. The language we use has a richness of itself in its abstract possibilities to express all kinds of possible relations—and it took many generations of culture to build up a system of so refined a value. But this relational system is hard to master for a child whose time and relation thinking is lacking and whose contacts with others always are the concrete persons themselves without the possibility of abstracting the system from the individual.

This is the general outline of the difficulty. That the teachers, however, succeed in raising their children to the wanted level is an achievement made possible by hard work, continuous reflexion, and above all by sharp and

fine intuition. It is the task of scientific research to try and prove these intuitions, to make them part of the whole of conscious thinking about the problem, and so to improve the teaching.

In every deaf child there exists a twofold tendency of contactual behavior. Basically there is the visual tendency which tends towards the highest possible distinctive visibility in simultaneous measuring, sampling, figuring, imitating of the world around—and secondly the visual tendency which is educated toward the acoustical language in so far as it is visible, and its richer, more abstract relational possibilities. In every school one can observe these two tendencies, e.g., in the difficulty of meeting the hearing world in the person of the visitor, against the easiness of contact with the deaf playmates. I'm not talking about signing versus non-signing: this is far more basic. And in every school (three cheers for the teachers) one can observe the steady shift of importance in these two tendencies, the decrease of the esoteric purely visual contact against the increase of the linguistic system of the hearing society around. I consider it as the linguist's task to analyze linguistically this progress, to start with an analysis of the esoteric, purely visual system. I have described and analyzed such a system, and I hope you will be able to study the concrete data and structures soon in an English summarized translation. Here, I only want to give a general idea. As you understand from what I have said in the beginning, the analysis had to include language psychology to finally find the linguistic structure, because much of the behavior was functional in these children's language in a different way. All the mistakes typical of the deaf child, come from the struggle between the two tendencies and from the interference of the purely visual categories with the visualized acoustical ones, as long as the last ones are still more or less foreign. Let me give you some grammatical categories which are typical for a relational system of communication in time sequence, and therefore foreign to a visual one. There is no great problem so long as concrete, visible things are called by their names. The problem starts where our grammar makes the linguistic distinction between noun and verb. A definition as thing-word and action-word does not help: there is as much thing or action value in *we hope* as *our hope*, in *I walk* and *a walk*, in *you dance* and *your dance*, and so on. Only the place in the sentence and the adnominal words make hope, walk, dance look, etc., noun or verb for those who know. Not so the deaf child. The distinction between verb and noun did not exist in their contacts that I investigated.

There is difficulty with time, as you know from your calendar work and your struggle

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with tenses. There is a concrete knowledge in the private language of deaf youngsters—they know today, tomorrow, and yesterday, Christmas, my birthday, and long vacation—but they don't have past, future, finished or unfinished modality, progressive form or anything, added to their concrete neither-verb-nor-noun notions, as dance, sleep, play,love, look, and so on. They simply say, "sleep yesterday," "play vacation," "look tomorrow," according to their own idioms.

Next, connected by implication, are the pronouns. They have the special difficulty of being an abstraction of a symbol: *I* represents my name and person, *his* represents the second fall of somebody's name—and they have the special problem of changing all the time according to who speaks and whom is spoken to. "Shall I give you some of my candy?" deserves the answer: "Yes, you should give me some of your candy"—and the deaf child is confused by all the I's, my's, and you's that become you's, your's, and me's. Much more when him's, their's, she's, they's, we's, her's, our's, etc., are introduced: for the child in his own language simply points: I-me-my-mine versus you-your-yours—he, she, his, him, hers, her—we, our, ours—they, their, theirs. And when English and even more Dutch or German, starts to relate noun and verb to each other, as in *he sleeps* or *she dances*, the problem becomes all the more confusing to our poor deaf youngster. Another point is the sequence of words in the sentence. The deaf child perceives and therefore thinks much more in visual simultaneities. "Don't you love me?" was an acoustical structure typical of our language in time that I saw a deaf child make all simultaneously—*you* by pointing, *love* by the other hand on the chest, *me* by the moving index of that hand, *not* by shaking the head, and the question mark by mimicry. Nowhere in its structure is the acoustical language more typically a relational structure than in its word order, and nowhere is the task harder on the deaf child. He lacks the insight into the abstract value of the structuring words—between, as, for, to, because, after, the and a, though, by, etc. He also lacks the sentence melody which rhythmically and melodically groups and structures the whole sentence. I found that the deaf child in his own system has but one system of sequence—the importance, either emotional, temporal, visual, or psychological, of the symbols used—and in this sentence frequently simultaneity, as shown: "You—me—downtown—movie—fun," equals "Movie—fun—downtown—me—you," or "Downtown—you—me—fun—movie." In this system, a typical relation word like a preposition finds its logical proper place after the word: table under, room into, bed behind, because you have first the thing and then the special relation to it, or rather, you see them both at once.

Most of what I have said was old news, but I hope the point of view was new. As one of you said: "It is about time that modern linguistics becomes interested in the field." I have tried to formulate briefly your and my problems from the standpoint of a linguist, not to show you again the extreme difficulty of your task, not to bring the teaching back to the manual level, and not to scare you for the future. My only intention was to help to improve, although I think it is more the task of a group and a generation than that of an individual. I see the linguistic task as follows:

By investigating more the primitive level of purely visual contact we can discover more about the basic principles of the visual communication systems as such and about the ways they develop. And we can, therefore, understand the linguistic, grammatical and syntactical problems of the deaf child. We have to build the bridge, let us explore more about the other side before we build the fundamentals. In other words: knowing about the categories that are natural for visual beings, but which are abnormal and foreign to our acoustic system, we will be more able to prevent them from developing, to use them as an easy start when they are usable, and to point them out and change them into the categories of our language of which we know so much and our little ones so little. Only when this work is done, will there be possible the close cooperation between the teacher and the linguist in helping the deaf child.

Dr. Tervoort's paper was followed by a demonstration of 12-year-old pupils by Mrs. Genevieve Barnes, Western Pennsylvania School for the Deaf.

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Business Meeting 10:30-11:25 A.M.

The President, Dr. S. Richard Silverman, called the meeting to order.

A piece of unfinished business left over from the last annual meeting which had to be acted upon at two successive annual meetings was brought up. This involved the amending of the Constitution to include affiliated groups into membership and the formation of a Parents' Section. Miss June Miller moved, and Miss Elizabeth Scott seconded, and the motion was passed unanimously by the membership.

The President presented resolutions that the convention extended its gratitude and appreciation to Dr. Sam Craig and his staff; DePaul Institute; Mount Lebanon system; United States Steel Corp.; Miss Josephine Carr and the program committee; Dr. George Pratt; Mr. Robert Cole; Mr. Isaiah Scheeline, Jr.; and all the parents who participated in the organization of the Parents' Section; the staff of the Volta Bureau, Miss Van Wyk, Miss Hill and Mrs. Johnson; the exhibitors; Hotel Webster Hall; the press of Pittsburgh; the Publicity Committee; The University of Pittsburgh for the Monday evening reception; the Wilkinsburg Civic Symphony Orchestra and its director; and to all others who had helped in any way to make the 23rd Summer Program Meeting an outstanding success.

The motion was made by Father Bartley, seconded by Florence Cleary, and passed unanimously by the membership that written letters of thanks should be extended to each of the groups mentioned above.

The President reviewed the organization at the Bureau in the past year and the employment of an Editor in addition to an Executive Secretary.

The President expressed appreciation to Dr. Groht for her new book which the Association has just published and which will be a real contribution to oral education.

The President stated that the Executive Secretary's travels and talks to various groups had helped the Association.

The President expressed appreciation on behalf of the Association of Mr. Hilleary Hoskinson and Mr. Richard Marsh of Washington, D. C. He said that these members of the Board are not known to the membership in general but they have been very active in furthering the affairs of the Association.

The President then reviewed the problems of the Volta Bureau:

1. The resignation of the Executive Secretary, Miss Van Wyk.

2. The need for more funds. He urged members to support the Association by purchase of materials and by interesting other persons in joining the Association.

3. He spoke of the overlapping of activities of other organizations with ours, not only speech and hearing societies but government agencies as well. He said that we need to relate ourselves with these groups more.

4. The President said that the Association needs to re-state and re-implement its purposes. He hoped that more regional meetings would be held and that parents would join the Parents' Section in increasing numbers.

5. The President urged the membership to keep in mind the unique characteristic of this organization: that it is an organization of professionals and laymen who have come together on an easy, informal and harmonious meeting ground. He urged that this tradition and atmosphere be maintained.

6. He urged that more members participate in the affairs of the Association and that the personnel of the Boards and Committees change more often.

7. In conclusion the President offered three principles as guiding rules: a. All people are important. b. We have not yet found the key to unlock the full potential of our children. c. The search for truth should continue unabated.

The results of the election of six members to the Board of Directors were announced. Re-elected to the Board were Sister Anna Rose, Sam B. Craig, Nathan P. Harris, Hilleary F. Hoskinson and Jacqueline Keaster. Newly elected was Josephine Carr.

Lilian Grosvenor Jones, Secretary

NOTE: At a meeting on Thursday, June 26, the Board of Directors accepted, with regret, the resignation of Miss Alice Kent from the Board. Dr. William Hardy was elected by the Board to fill Miss Kent's unexpired term.

NOTICE

Do you have copies of the *Volta Review* for January, February, March or April, 1958, which you do not plan to keep for binding? If you can spare these issues, or any one of them, the Alexander Graham Bell Association for the Deaf would be very pleased to receive them. The supply for these months has unfortunately been exhausted and the Association is unable to fill any orders for complete sets of the magazine.

Please send your extra copies to: Alexander Graham Bell Association for the Deaf, 1537 35th St., N. W., Washington 7, D. C.

Speech in Our Upper School

MARGARET WOOD

Mrs. Wood teaches in the academic department of Lexington School.

In the upper school at Lexington it is believed necessary and practical to have each teacher devote a 30-minute period to speech with her home room class the first thing every morning. If the students are to be able to express themselves orally in class discussions and general conversation; to give oral reports; to read or tell stories to others; to plan parties, projects and programs as a group; and to communicate with visitors, guests, friends and relatives, we feel that there is a definite need for this daily speech period. It is at this time that group drills and special skills or principles are given.

Our pupils in the upper school range from 11 to 18 years of age. We have had children as young as ten enter the department. With such variation in ages, there is a vast range in their needs. The group speech periods are geared to the needs of the classes. Individual problems are taken care of at other times.

By the time the children enter this department their patterns of speech are pretty well established. In such a short daily period the teacher is able to work on only the greatest weaknesses of her class. The general problems are in: voice quality, phrasing and rhythm, blends, enunciation of vowels, enunciation of certain consonants; e.g., s, t, d, l, r, sh, zh, ch, k, h, v, and pronunciation.

Basic facts are checked on as the pupils enter the department. They need these principles for the pronunciation of new words, with or without the use of the dictionary. The Thorndike Century Junior Dictionary or Thorndike-Barnhart High School Dictionary is used by all of our classes. These are the basic principles the pupils should have acquired:

1. the knowledge of the sounds and names of all the letters of the alphabet
2. an understanding of the diacritical marks used in the Thorndike dictionaries
3. an understanding of syllabication
4. an understanding of the meaning of "strong" and "weak" syllables
5. the ability to spell a word intelligibly
6. the ability to attempt the pronunciation of words marked diacritically by the teacher
7. the knowledge of certain phonetic facts as: *c* before e, i and y as in ce, ci, cy says "s"; *c* before a, o, and u as in ca, co, cu says "k"; and *tion* is pronounced shun
8. the pronunciation of the past forms of verbs, viz: if the infinitive of a verb ends with a breath sound, the past is made by adding *t*; if the infinitive ends with a voiced sound, the past is formed by adding *d*
9. the knowledge of stops and blends
10. good patterns of phrasing, stress and rhythm

Here are other basic facts that I personally feel are of great value to the pupils in attacking the pronunciation of a new word.

In one-syllable words containing one vowel, the vowel is usually short unless it comes at the end of a word; e.g., pan, shut, wet, got, bit.

When there are two vowels, one of which is a final *e*, in a one-syllable word, the vowel is usually long and the final *e* is silent; e.g., pale, pine, fume, home.

When there are two vowels together in a one-syllable word, the first vowel is long and the second vowel is silent; e.g., rain, feat, boat. (Games may be played utilizing these rules. Take a simple word like *pan*. Have the class pronounce it. Add final *e* to the word, making it *pane*. Then have that word pronounced.)

In consonant combinations such as *tn, tl, nd, nt, dnt, ld, lt*, in which the tongue is held in close alveolar position without change or movement and the manner of voice production changes, the children should be taught to produce these combinations correctly.

In many phrases and combinations of words the voice is continuous and the consonant is linked to the following syllable if it begins with a vowel.

The correct pronunciation of plurals, e.g., box*es*, hats, ties, tables, glass*es*.

The pronunciation of these commonly used combinations of letters should be taught: tial as in in*itial*, ture as in na*ture*, tien as in pa*tient*, and tious as in scrump*tious*.

When abutting consonants occur within a phrase or word the position of the first consonant should be held until the second consonant has begun (e.g., depar*tment*, the *t* should be held until the pupil is ready for *m*), or the transition from one syllable to the next should be effected so smoothly that no intervening vowel sound is heard (e.g., the*m*selves, no vowel sound should be heard between the *m* and the *s*).

At the opening of each daily speech period, voice exercises, e.g., the Fillibrowne exercises, are given for a few minutes. These are helpful to all and get everyone set for the work that follows. These exercises are good for oral and nasal resonance and for continuity of voice.

I'll illustrate a typical lesson of the many kinds given at Lexington.

A new word is written on the blackboard by the teacher, who then pronounces it clearly into the microphone and then says it for each child as the child puts her hand on the teacher's face. These are the steps that she follows after saying the word for all:

How many vowels do you see?
How many vowels do you hear?
How many syllables are there? Why?
Where is the accent?
What is the vowel in the accented syllable? Pronounce the vowel.
Write the word phonetically.
Pronounce the word.
Use the word in a sentence.

Have each pupil pronounce the word to the best of her ability. As she pronounces it, note the vowel quality. Are the vowels correct? Are they too prolonged or not prolonged enough? Are the accented syllables stressed? Are the consonants sharp and clear? Make any necessary corrections and then have the pupils use the word in an original sentence.

As the students prepare their sentences call their attention to phrasing, stress and rhythm as well as right pronunciation. Remind them to make the most important words in the sentence strong.

If the phrasing of a sentence is good, a person's speech will be more intelligible even if the *enunciation* isn't perfect. In phrasing teach the child (1) to speak in meaningful phrases; (2) to pick out the important words in each phrase and stress them (nouns, verbs, adjectives and adverbs are usually strong); (3) to subordinate the unimportant words (articles, prepositions, conjunctions and other connectives are usually weak); (4) to give the vowel in the accented syllable of a word its full value. (The rhythm of a word of more than one syllable depends on the correct value given to the vowel in the accented syllable. Vowel sounds are changed because of stress or absence of stress); (5) to pause for emphasis and to replenish the breath at commas, the end of a phrase or the end of a sentence; (6) that in a phrase or sentence when a word ends in a consonant and the next word begins with the same consonant, the consonant is said only once, e.g., Mary went to the movies; (7) to keep the auxiliary and the main verb together in the phrase.

Correct phrasing, good rhythm and the right stress can be taught and should be expected at all times—in daily recitations, con-

CALENDAR OF EVENTS

CONFERENCE OF EXECUTIVES OF AMERICAN SCHOOLS FOR THE DEAF—Oct. 5-10: Northampton, Mass.

NATIONAL REHABILITATION ASSOCIATION — Oct. 12-15: Asheville, N. C.

REGIONAL CONFERENCE, CONFERENCE FOR EXCEPTIONAL CHILDREN — Nov. 5-8: Denver, Colo.

NATIONAL SOCIETY FOR CRIPPLED CHILDREN — Nov. 16-20: Dallas, Tex.

AMERICAN SPEECH AND HEARING ASSOCIATION — Nov. 17-19: New York.

ACOUSTICAL SOCIETY OF AMERICA — Nov. 20-22: Chicago, Ill.

WESTERN SPEECH ASSOCIATION — Nov. 27-29: Salt Lake City, Utah.

SPEECH ASSOCIATION OF AMERICA — Dec. 29-31: Chicago.

37TH ANNUAL CONVENTION, COUNCIL FOR EXCEPTIONAL CHILDREN — Apr. 7-11: Atlantic City, N. J.

SPEECH ASSOCIATION OF THE EASTERN STATES — Apr. 9-11: New York.

ACOUSTICAL SOCIETY OF AMERICA — May 14-16: Ottawa, Ontario.

CONVENTION OF AMERICAN INSTRUCTORS OF THE DEAF — June 28 - July 3: Colorado Springs, Colo.

11TH CONGRESS, INTERNATIONAL ASSOCIATION OF LOGOPEDICS AND PHONIATRICS — Aug. 17-22: London, England.

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versations, oral reading of newspaper items, or literary selections. The students should apply what they have learned in the speech period to the oral work in other classes.

There are many other ideas that can be used with your classes. Here are a few suggestions that are practical and helpful:

1. Have the students mark lists of words phonetically without consulting the dictionary. This will show how they think the words should be pronounced.

2. Write words phonetically and see if they can figure out the words and pronounce them.

3. Take a sound like *ch* and show that sometimes it says *sh*, as in Chicago and chef —or *k*, as in echo and architect.

4. Take words that seem to confuse them, e.g., quit, quite and quiet; reserve and conserve; sheep, cheap and seep, and teach the correct pronunciation.

5. Give words that are spelled exactly the same way but pronounced differently depending on the usage.

The children brought a *present*.
They will *present* it to their mother.
Mr. Smith is a *convert*.
He wants to *convert* others to his way of thinking.

6. Have the class mark a paragraph for phrasing.

7. Study the history of words with older pupils.

8. Teach the meaning of preferred pronunciation and give examples.

9. Give an adaptation of Klinghart markings.

10. Teach the correct pronunciation of names of movies, movie stars, etc.

If the pupils have gone through a program such as this, they should have acquired a sense of independence that will enable them to attack words on their own, and certainly they will have a facility in the use of the dictionary to help them pronounce unfamiliar words correctly. We also feel that if they are taught to think of what they are going to say, phrase it, and make the important words strong, they will make themselves better understood.

Each of the teachers in this department has found that in order to teach her own special subject, she has to provide her pupils with the vocabulary needed for the material being taught. To have a complete working vocabulary, pupils must be able to pronounce these words as well as read or lipread them. Most of this work would be done in the regular classwork, not in the speech period.

The social studies teacher says that she spends time teaching special vocabulary which includes such words as: century, Renaissance, Constitution, Parliament, Crusades, government, missionaries, monarchy, democracy, inauguration, legislature, civilization, names of countries, states, cities, continents, oceans, rivers, lakes and prominent people.

In the reading classes the older students read newspaper items orally. This means that they learn to say names of people and places found in current topics. They read poetry orally, and that provides good training in reading with expression and feeling. They read jokes to one another—a different type of reading which necessitates a different use of speech.

In the arithmetic classes the correct pronunciation of many difficult but fundamental words is taught in order that the students may have the necessary speaking vocabulary for explanations and discussions; e.g., quotient, circle, cylinder, measure, diameter, scale, graph, pounds, perpendicular, subtract.

In English (my subject) speech is important and essential. Most of the written work is preceded by oral discussion with development of vocabulary and ideas.

There are other ways that speech could be used in correlating it with language:

1. Use of antonyms. Teacher gives a word and has the pupils give its opposite.

2. Use of synonyms. Teacher or pupil gives a word and others give a word of the same meaning.

3. Use of homonyms. Teacher gives a sentence with a homonym; pronounces the homophenous word, and has the pupil pronounce

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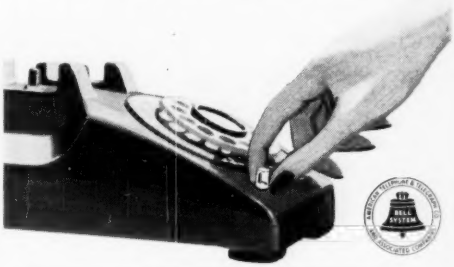

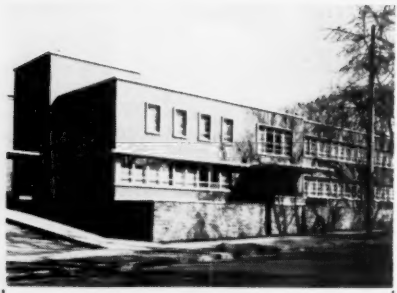

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it, spell it and pronounce it again.

There are *two* books on the table.
John has *too* many books in his room.
Mary went *to* the movies.

4. Meanings and use of prefixes and suffixes. Take a word, e.g., *depend*. Change it by adding prefixes or suffixes and have the students pronounce the "new" forms—independence, dependence, dependable, undependable. Use the words in sentences.

5. Work on such words as punctuation, apostrophe, comma, paragraph, signature, complimentary close, salutation, abbreviation and quotation.

The possibilities for correlating speech with all oral classwork are almost without end. When the students have been given or have found for themselves the correct pronunciations of words needed for their work, they should be held responsible for them in every subject.

There are other ways that the upper school students learn useful speech. Each year one of the classes holds a mother-daughter tea. The girls write the invitations in English class, learn all of the correct things to be said at such a function in their speech class, and prepare and serve the food under the direction of their home-making teacher. This is a practical experience in every way.

This past year a student committee representing all of the classes planned the weekly assembly programs under a teacher's direction. The seven members of the committee were responsible for the programs. That meant that each girl had to introduce her program or the speaker of the day, narrate for a play or skit, make presentation speeches and the like. Many of the girls from these classes were in various dramatizations. All of these situations involved the use of speech away from the classroom.

I haven't begun to tell all of the things that we do or could do to correlate speech with our schoolwork in the upper classes, nor have I been able to go into much detail on our speech program, but I hope that I have shown you in a practical way that speech is constant and ever purposeful.

The Need for a School to Have a Philosophy of Teaching Speech

ALICE MONAGHAN

Mrs. Monaghan is coordinating supervisor of the Rotating Department at Central Institute for the Deaf.

For the sake of clarity it is necessary to indicate precisely what I mean when I speak of a philosophy of teaching speech. To me, a philosophy is a set of intellectual, emotional

and social attitudes translated into a school's principles as applied to the teaching of speech. I believe they are reflected in the practices and guides for teachers and parents consistent with those outlined by our director at Central Institute, Dr. Silverman, in his chapter on "Clinical and Educational Procedures of the Deaf" in the *Handbook of Speech Pathology*.[7] In this presentation I have taken the liberty of re-interpreting, elaborating, and reinforcing them.

Early encouragement of speech. Early encouragement of speech has value for both the parent and the child. It may result in preservation and recapture of random articulation or babbling which underlies the fluencies of speech. This is in agreement with the belief of the Ewings[3] that something must be done as soon as the child is known to be deaf. Irwin,[5] who has carefully studied infant speech, has shown that by the tenth month practically all sounds have appeared. The congenitally deaf child, Anderson[1] states, will continue through at least a part of the babbling period, but his speech development ends here: he does not progress with lallation, because hearing is necessary for the circular reflexes. The normal babbling state for the hearing child extends over a long period; and, by extending the period for the deaf child, it may be possible to preserve natural tongue, palate and lip movements. And if easy natural features of voice and respiration can be preserved, it may preclude the difficulties of actual imitation of phonation, as well as some of the strain and breathiness which creeps into the speech of many deaf children. Silverman[8] expresses concern about our apparent failure to capitalize in later speech development on the spontaneous utterances of the very young child.

Work with very young children away from the classroom can be a mother-teacher project, giving the child an opportunity to develop some articulation in a familiar home atmosphere. The mother could be instructed in a system of simple syllable drills such as those advocated by Avondino,[2] who observed that deaf children could be taught to apply early experience in the manipulation of syllables to the production of words and sentences. Of course, the mother will be told about the use of all sensory pathways., She will talk so that her face can be seen, and into the child's ear or hearing aid microphone. She will be alert to seize opportunities to permit the child to feel speech or musical patterns. I would like to stress that the young child must first gain

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a feeling of security, as well as the respect, confidence and love of those around him, before he can cope with the problems of being a deaf child. A close mother-child relationship in speech work may help him feel more secure. If it is not possible to work with a child prior to entrance into school, recapture of babbling is an excellent base from which to start speech training.

Creation and Maintenance of a Speech Environment. It is up to us to create for the child a living speech environment. We must so set the stage for him everywhere—in the home, on the playground, in the school room—from the moment the child is known to be deaf, that speech eventually becomes meaningful, significant and purposeful at all times. Parents, housemothers and all who are responsible for the child's development need to share this attitude. A child is more likely to learn speech right from the beginning if he sees some purpose in it. It may be only one word or one babble, but if it attracts someone's attention it has served the purpose. It is the job of the teacher to create and seize upon situations that bring forth vocal utterances. We all get satisfaction from hearing ourselves talk—from hearing our own voices. As the child progresses, he needs to experience this satisfaction.

Consistent Teaching Practices.—

The multisensory approach: The sensory channels commonly used by teachers of the deaf to develop speech are the visual, the auditory, the tactile and the kinesthetic pathways. We use them differently, at different times and with different emphases, but they all need to be utilized in whatever degree they are present in the child. I would add another dimension, that of a synthesis of all these senses. Letting the principle of individual differences operate, the child will draw most heavily on the sense through which he gets the strongest impressions.

In the early speech stages a non-analytic approach is preferable; and since we are dealing with imitative little creatures, we should capitalize on the fact and let them imitate through a synthesis of their multisensory impressions. No preconceived notions of a small child's capabilities should limit early speech development. When we resign ourselves to imagined difficulties in speech production, we do him an injustice. A child allowed to learn *t* for a final stopped *d*, as in *bowed*, may carry the habit always. His observed ability must be the only guide. How wise Haycock[4] was when he included "imitation" among his suggested ways of developing articulation.

Good speech habits from the onset of formal speech training: Good speech habits imply precision and control of production of speech sounds, coupled with development of

fluency. From the start we must also be sensitive to the child's problems of pitch and intensity control. Let us realize that we are the child's monitor. And if, at this state, we cannot create in him strong impressions, it may be impossible to get through a maze of bad habits later. As the child's monitor, we need constantly to remind ourselves of the fact that whenever we accept an imperfection, we reinforce it.

Reasonable practices of correction: As the child grows older, we seem to depart from closeness to him in teaching speech. He appears to become more and more physically remote from the teacher. This is a critical time, because the child's speech habits may not yet be well enough crystalized. He may not yet have the facility to correct himself. More than ever the teacher's ear needs to be alert to any speech errors that are emerging or are being reinforced. His voice quality may be changing, he may be omitting word endings, his rate may be slowing up, he may be losing precision. He still needs to have his own monitoring bolstered by the additional monitoring of the skilled teacher. But it takes great sensitivity on the part of the teacher to be able to monitor without undermining the child's confidence in his own ability. Frequent carping criticism of a child's speech may demotivate him.

Development of the child's ability to monitor his own speech: After good speech patterns are established, there comes a time when the child must assume the responsibility for maintaining them. Upon leaving his special school, he is not likely again to have a monitor. Speech built at great expense to the child must be preserved and the child must be taught the techniques for doing this. Training in self-reliance is not something that can be done hurriedly just before he finishes school. He needs to realize he can depend on what his other senses tell him. He needs to be well versed in the use of inflection. He needs to be able to control the intensity of his voice. Such techniques are set through trial and error. Newby[6] suggests that the child depend upon the people with whom he is talking for visual cues. For example, if they seem to have difficulty understanding him, he can increase his intensity or watch his precision. Newby feels that, since it is more difficult to judge when one is talking too loudly, it is better to teach the child to decrease the intensity of his voice until it is apparent that others are having difficulty hearing him, and then speak at a slightly higher level of intensity.

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ical teaching guides and needs. This is an area in which I have a special interest. Often, as Silverman[7] points out, it comes to us in anecdotal form. This spring we solicited reports from the schools about the achievements of our 1957 graduates. I would like to share with you several of the replies we received in answer to the question "Do you understand the child's speech enough to make communication with (him or her) effective?"

> *Jack*—A few of his words are difficult to understand until one becomes acquainted with the subject being discussed. Most of the time one can converse with him very effectively.
>
> *Sally*—Her speech is adequate.
>
> *Mary*—She is difficult for the students to understand.
>
> *Susie*—(One teacher)—She is difficult to understand; and there are times when I can't understand her at all. (Another teacher)—I think anyone could understand her if she talks slowly and the listener listens carefully.

The divergence of opinion on Susie's speech points up the fact that there is variability among listeners and that it is difficult to assess the over-all communicative efficiency of the child. Nevertheless, as soon as the child has enough language for communication, we need to expose him to critical listeners.

Frequently parents indicate that it is difficult and awkward for children to get into conversation with their classmates. On many occasions, when the deaf child initiates a conversation, the reply by the hearing child consists of one word, which ends the conversation. This is an area, then, which carries implications for indoctrination of the deaf child and perhaps the students with whom he will come in contact. We need to find out specifically what it is that creates avoidance by the hearing child. Could it be the quality of the deaf child's voice that creates a block? Is it fear of not understanding or not being understood? Is it embarrassment over coming face to face with a deaf child for the first time and not knowing what to do about it? As the deaf child goes through life, he will meet many such situations, and he will need to learn how to handle them. As to indoctrination of the hearing students, the deaf child could talk with small groups at the beginning of the school year, which might ease tension arising from a first meeting. But is this what we want? Maybe it would be best for the deaf child not to be a special case and to make his own way with each child on the basis of the preparation we have given him. Deaf children need hearing children's reactions explained to them.

In summary, I have tried to say that a philosophy of speech consists of a set of attitudes that are reflected in the school's practices. We must never cease to be inspired

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by the many examples of deaf children who have become an integral part of the talking world.

1. Anderson, Virgil A., *Improving the Child's Speech*. New York: Oxford University Press, 1933. pp. 18-22.
2. Avondino, Josephine, *The Babbling Method: A System of Syllable Drills for the Natural Development of Speech*. Washington: The Volta Bureau, 1929.
3. Ewing, I. R. and A. W. G., *Speech and the Deaf Child*. Washington: The Volta Bureau, 1954.
4. Haycock, G. Sibley, *The Teaching of Speech*. Washington: The Volta Bureau, 1942.
5. Irwin, O. C., "Infant Speech Consonantal Sounds According to Place of Articulation, "*Journal of Speech and Hearing Disorders*, Vol. 12, No. 4.
6. Newby, Hayes A., *Audiology Principles and Practices*. New York: Appleton-Century-Crofts, Inc., 1958. p. 257.
7. Silverman, S. Richard, "Clinical and Educational Procedures for the Deaf," *Handbook of Speech Pathology*. New York: Appleton-Century-Crofts, Inc., 1957. p. 389-425.
8. Silverman, "Teaching Speech to the Deaf—The Issues," *Volta Review*, Vol. 56, No. 9., p. 385.

Speech for Outside Activities

GRACE MANNEN

Miss Mannen is supervisor of speech at Nebraska School for the Deaf, Omaha.

Speech for outside activities is a broad topic that cannot be minimized if one is to realize the full implication of its meaning. Doesn't it seem to you, as educators, that speech for outside activities has been our ultimate goal since the first efforts towards speech were begun by the young deaf child? Because of this fact, early planning must be broad enough to see beyond the classroom.

Doors have yet to be opened to make speech for the deaf child a practical, living tool. Who has the key to unlock these doors? The *school*, the *family* and the *community*. Each year children go out of our classrooms inadequately skilled in speech. Some of this could be avoided, some could not. Unless we can keep our schools staffed with teachers who have an interest in speech and a knowledge for teaching speech we may find this situation becoming worse instead of progressively better.

Speech outside the classroom will depend upon what we have done in the classroom to prepare the child. What we have done in the classroom depends upon the skill of the teacher in perfecting speech by every means possible. Teachers must continuously be on the alert for ways and means of giving speech that will meet a future need while satisfying a present one.

How best to bridge the gap between the sheltered environment of the special school for the deaf where the child's handicap is understood and the indifferent, unattuned ears of the outside world is still our major problem. Confidence must be instilled before our pupils accept the idea of using speech outside the school. It grieves me when parents confide that their child does not use speech at home voluntarily. When these same children do make use of speech as a means of communication in school. I know that we have not succeeded in fulfilling the requirements of a good speech program until we have established a mutual understanding between parents and children. Oral communication needs to be induced and parents have the power to influence this need if they will take heed. "Children should be seen and not heard" does not fit into our present day program of educating the deaf child.

I relate to you a personal experience to exemplify this need for better parent-child relationship. A mother visiting school one day overheard the conversation that took place between a pupil and me. The boy, an extremely hard of hearing child, has worn a hearing aid effectively for many years. The mother's remark was, without doubt, one of desire rather than criticsm. "I wish *my* child could talk like that," voiced an implication of disappointment. Her child is profoundly deaf. Although he wears a hearing aid, I ar convinced that it gives the parents more satisfaction than it does the child. I am inclined to wonder if there is not a bit of disappointment in the school, the teachers and even in the child himself when parents fail to recognize the limitations deafness imposes on the quality of speech which the profoundly deaf child is able to produce.

I have in my possession a copy of the 1900 issue of *The Association Review* which contains an article, "The Family as Co-Worker in the Education of Deaf Children," translated from a German periodical for the deaf. The article might well have been written for this very time and occasion when parents are affiliating with the Association. For this reason I wish to share with you some of the ideas it contains.

> . . . The school and the family are the two most important educators. If there is no mutual interest between them, or if they are hostile to each other the work of education is rendered difficult, or even becomes problematical. . . . As the most efficient means, however, for strengthening the bond of union between the school and the family we must consider Parents' Associations, i.e., meetings of the parents where instruction, lectures by the teachers, recitations and social intercourse pleasantly occupy a few evening hours.
>
> . . . What ignorance concerning our aims do we not find among the public, and therefore likewise among parents and friends of our scholars! One person is

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astonished that the deaf learn to speak: others are disappointed or even angry that we do not obtain results; whilst others again have not the slightest idea in what form an understanding by speech is reached between the deaf and persons possessed of all their faculties . . .

Truly it is no easy task to educate deaf children; and if even with the most arduous labor and constant watchfulness, both as regards the instruction and education of our pupils, we fail to fully reach our aim, part of the fault must be found in the fact that the school has to do the work almost entirely by itself. It is easier for two persons to safely carry a load to its destination, than for one whose strength gives out on the way. Therefore, let the family cheerfully take upon itself a share of the burden![1]

Speech is social and must be used in social situations. We have come to accept a broader view of the term speech. We no longer consider it an articulation period in which the teacher alone develops all the child's speech; but we have made it inclusive of social language used in many areas of the child's life. I am certainly not in favor of doing away with articulation, but I do favor more integrated speech and language programs within our schools, to better prepare children for living outside the school.

Early this spring I encouraged pupils in the ninth and tenth grade speech classes to write brief histories of their lives. Some personal experiences in these histories gave me a better understanding of the children with whom I was working, and incidentally gave me a more sensitive understanding of the feelings of the young deaf child left in a residential school.

One boy wrote, "I didn't cry when my parents left me, but I was sad and bitter when they did not return."

Another wrote, "I thought when my parents left me that they were coming back; when they did not I cried and held my Teddy bear close in my arms. I carried my Teddy bear with me most of the time."

Still another boy wrote that when he was small he wanted to build a birdhouse at home but his father always said "Wait." I asked if he ever succeeded in building the birdhouse, and he told me that he never did. I feel that this had a real significance to this boy to have remembered and to have written an incident so simple into his history. This

1. *The Association Review*, vol. II, No. 3, p. 242.

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illustration seemed to speak of the many opportunities parents have for creating a friendly, casual relationship with their children. Building a birdhouse would have provided many natural speech and language expressions which the school might never provide.

I have found that older pupils like to be allowed to express their opinions—and many times their opinions are worth considering. When I asked them to give me some pointers on this topic of "Speech for Outside Activities," they gave first importance to their conversational language books. These are compiled for the purpose of making the pupils aware of common remarks in daily use. Most of the information is useful in such basic situations as ordering a hamburger in the school teen-age club or at a drive-in. I believe that we give our students confidence by making them aware of the language used in ordinary daily situations.

The hearing aid is the subject for necessary conversation. General remarks based on care of the hearing aid have become a useful part of this material. We have occasional check-up service at school by technicians from several hearing aid companies whose aids we use. This is in addition to our regular school service. I arrange for pupils among the high school group who wear hearing aids to meet personally with these representatives and to be responsible for the conversation necessary for their needs. This will offer practical training in the upkeep of their hearing aids after they leave school and will acquaint them with the language necessary to get this service.

Other ways in which social language can be put to use outside school is through "selling" as a school activity. Scout activities may provide occasions for selling in your school as they do in the Nebraska school. Girl Scout cooky sales, as well as the sale of Christmas cards, gifts and novelties call for conversation to promote sales ability. The conversation pamphlets also contain suitable language for selling, which relieves teachers and activity directors of time devoted to such language.

The formal dances, which are a social activity in most residential schools, provide one of the most pleasurable ways of developing the perfect host and hostess. Since girls are naturally a little more social than boys, they seem to find this easier than boys. At the girls' spring dance no girl or boy remained a wallflower long. Speech was in evidence from the moment the receiving line greeted the guests until the last farewell was said, proving again that speech must be made vital and livin g to have real value.

Speech through guided tours is a challenging way of acquainting the public with the deaf child and also of putting the child at ease with the public. Your school may have many visitors during the year. Someone

takes them on a tour of the buildings and classrooms. It is possible to let pupils share in this and increase vocabulary while imparting information. The past two years pupils took full responsibility in conducting visitors through special activity rooms during an open house. These occasions were entirely pupil directed and pupils had to anticipate that they might be asked questions by the visitors.

One of the most satisfying experiences in my teaching career came about last year, and again this year, when pupils in the high school told the story of the "Progress in the History of the Education of the Deaf" through public speaking. Posters were used to portray the transitional periods of development. These provided a welcome prop for inexperienced speakers. The programs were presented to the public on two occasions. These are only a few of the plans for encouraging the use of speech for outside activities. A work-study plan in the last semester of the senior year created a need for more oral communication beyond the boundaries of the school and home.

Speech for outside activities stands a better chance of becoming more functional if we can educate the public while we are educating the deaf child. Whatever the final outcome of the speech of the deaf child outside school life may be, let us not lose sight of the fact that while each of us is free to develop the best qualities within us, these are not necessarily the same qualities as those of everyone else.

Sister M. Philomena, S.C., gave a demonstration of 14-and 15-year-old pupils from DePaul Institute, Pittsburgh.

Audiology

Friday, 9:00-10:45 A.M.
June 27

Chairman: Dr. Freeman McConnell, Professor of Audiology and Director, The Bill Wilkerson Hearing and Speech Center, Vanderbilt University, Nashville

Changing Concepts in Audiology

MARY ROSE COSTELLO

Dr. Costello is audiologist at the Henry Ford Hospital, Detroit.

For many decades individuals from various scientific disciplines have focused attention upon the ear and the hearing mechanism. Scientists have studied the neuro-physiology of the auditory system. The physician has been engaged in the diagnosis and treatment of abnormalities of the ear. Working apart from either of these were the educators of the deaf and the hard of hearing, who dealt with the communicative disabilities associated with hearing impairments. In still another sphere was the aphasia therapist concerned with the auditory and linguistic problems related to central nervous system damage. The psychologist, too, has been interested in hearing and has contributed much to our knowledge of the psychological aspects of audition. All of these and others have been concerned with hearing and to some degree with communication. In the past, however, they were often unaware of the significance and pertinence of each other's findings. For the most part they functioned in distinct spheres and were relatively uninfluenced by the discoveries and concepts arising in other areas. The rapid progress which has marked the field of hearing and communication during the past 15 years or so has been, in part, the result of a more coordinated approach to the study of hearing. Improved techniques and methodologies for both clinical and experimental studies have made it possible to obtain information which was hitherto unavailable.

The development of equipment and techniques for the measurement and analysis of hearing behavior, whether normal or abnormal, has had great impact upon the field. Perhaps one of the most significant advances was the development of the audiometer. This made it possible to establish hearing threshold norms. It resulted in information about the way in which normal ears handle frequency, intensity and other dimensions of sound. In the field of defective hearing, this instrument allowed the quantification of hearing loss and permitted some degree of description. The differentiation of conductive and perceptive impairments could be more reliably determined. Its use revealed valuable information about curves of hearing which characterize such problems as presbycusis, otosclerosis and acoustic trauma. Hearing evaluation began to become a part of many otologic studies and children in schools for the deaf received differential handling on the basis of hearing test results. Indeed, in some respects the development and use of the audiometer marked the beginning of clinical audiology.

Fortunately for the science of hearing and for individuals with auditory impairments,

audiology did not develop as a distinct and separate field. Its nature emerged during the war years when the united efforts of various specialists—the otologist, psychologist, hearing and speech therapist—were directed toward the rehabilitation of the hearing impaired person. This pooling of knowledge and skill resulted in new information and brought about the development of new approaches to the study of hearing. At this time, too, came a sharp realization of the complexities of hearing problems and the great gaps in knowledge and techniques of analysis and treatment. It resulted also in two important concepts which have come to be a part of the philosophy of the audiologist.

These concepts which have become identified with audiology have had much to do with the increased interest in the hearing process, because audiology is concerned with hearing in all its aspects, normal and abnormal. Audiology encompassed the work of both the experimentalist and the clinician and gave impetus to basic and applied research. It became essential that an individual in the hearing field keep informed about the findings in related areas. This concept marked a movement away from the study of the ear as such, from the auditory cortex as such, from the language problems of the deaf child as such toward the appraisal of such areas as related and interdependent parts or functions of the auditory system.

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The hearing field and particularly the clinical area became identified with another major concept. Attention was given, not to the hearing loss per se, but rather to the person with the hearing impairment. It has become increasingly important that the clinical audiologist maintain this concept of the individual and his total needs. The clinical audiologist is not dealing with GSR results, audiometric results, or EEG results, but with individuals who present particular patterns of auditory response. This deviation in auditory behavior is interpreted in the light of information obtained from various study situations and other behavioral manifestations. It is not enough to conclude our appraisal of a child or adult with a verdict of normal hearing or defective hearing. It is not even enough to state that this is conductive deafness, sensory deafness, a neural or cortical problem. Many times it is necessary to synthesize the information from psychological, medical, linguistic, neurological and auditory studies. Audiology is concerned today, not with auditory responses, but rather with auditory behavior as it is reflected in many aspects of the child's or adult's adjustment.

The clinical audiologist must retain this broad frame of reference, while using the results of research to interpret his clinical findings. For years all hearing problems have been divided into conductive and perceptive types, and many generalizations, which we now know to be unfounded, were made about the latter. In more recent years audiologic techniques have been developed to analyze the so-called perceptive type of defective hearing. One important achievement was the development of speech-hearing tests which demonstrated that impaired ears may behave quite differently at above threshold levels. The discovery of recruitment and subsequent methods of evaluation of this condition have been extremely helpful in differentiating cochlear from retro-cochlear lesions.

Such differential techniques have in general been applied to the study of the hearing problems among adults. Recent studies point to a more accurate analysis of hearing difficulties observed among children. Such work is exemplified in Flottorp's[3] report of evidence of cochlear involvement among hearing impaired athetoids. The recording of cortical responses in humans, utilizing electro-encephalographic techniques and analyzing the data objectively as described by Derbyshire[1] promises to be valuable in diagnosis. This kind of information is helpful in differential diagnosis and treatment. We are no longer merely concerned with the degree of auditory impairment, but rather with the nature of lesion or lesions responsible for the deviations observed.

Puzzling audiologic pictures are appearing

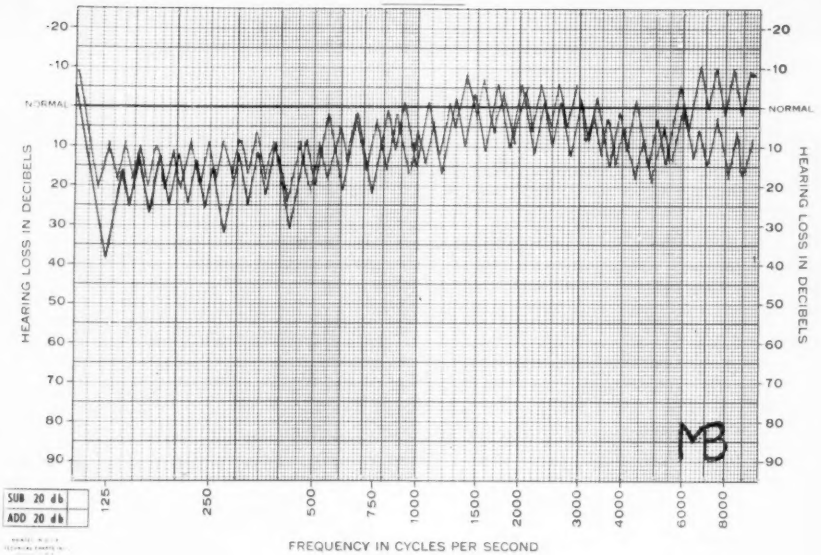

Figure 1.

more and more as the evaluations of hearing problems are studied with new audiologic concepts. Theoretical explanations of the etiology or the site of lesion are being offered. Terms like auditory imperception and aphasoid are being used to refer to children whose end organs of hearing appear to be intact, but who seem incapable of using the received sound in a functional manner. The rapidly advancing information in neurology, physiology and anatomy of the auditory system will in time provide us with the answers to some of these questions. The significance of the efferent nerve fiber tract in the physiology of audition is unknown, but there is already evidence that it may act as a feedback mechanism which inhibits peripheral activity and modifies it in some way.[4] Neff et al[5] have reported a deficiency in sound localization ability following extirpation of certain auditory cortical areas in cats. The relation of auditory discrimination to neuron population is evidenced by the fact that cochlear nerve tumors produce discrimination losses out of proportion to the pure-tone loss. In support of this Schuknecht[6] has shown that 75% of the cochlear nerve fibers may be lost without an appreciable change in pure-tone threshold acuity. He is now conducting other animal experiments designed to study the effect upon pitch discrimination of sectioning portions of the cochlear nerve. Communication theory, too, is contributing to our understanding as evidenced by Tunturi's[7] calculations regarding the storage capacity of the auditory cortex. This kind of information about the auditory system and its function, when viewed from the standpoint of clinical findings, makes this era in audiology a most challenging and exciting period.

Let me give you one example of a type of auditory problem which is receiving attention in clinical audiology. Figure 1 is the audiogram of a young lady whose hearing is within normal limits in so far as acuity is concerned. Despite this audiogram, this young lady was educated in a school for the deaf. She did not learn to talk, although she is proficient in the use of the manual language. She expresses herself well in written language. She reads well. She has had one year of college. She is an intelligent and attractive young lady. The fact that she was educated in a school for the deaf was not entirely in error—for this girl has a severe auditory problem. Since very early in life she has been unable to understand speech, although she is aware of sound around her, identifies many environmental sounds and enjoys music. She appears to localize sound with some difficulty and shows reduced pitch discrimination ability. She has normal caloric responses bilaterally. Audiologic tests indicate that this is not a cochlear problem. Where in the auditory system does the lesion lie? Some might call this a receptive aphasia and place the tension in the cortex. Others might postulate a breakdown in the transmission system. Apparently this is not or has not been a problem in alerting.

More precise evaluative procedures coupled with current information about the anatomy and physiology of the auditory system will be of great assistance in the analysis of problems such as this. There is need for a selective educational approach which would maximize the auditory potential, but at the same time recognize the limitations set by the nature of the lesion. Fortunately the integration of findings from studies in communication, audiology, neuro-anatomy and other areas is being realized today as never before. We have only to read some of the current literature emerging in these areas to realize how fruitful a period this is. At the same time one cannot fail to suspect that further delineation of the auditory system will only lead us into other complexities. Today we are finding some of the answers to some of our questions. However, the indications are that tomorrow will present other areas for exploration about which we now know too little even to ask.

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2. Fowler, E. P. "The recruitment of loudness phenomenon," *Laryngoscope*, 60: 680, 1950.
3. Flottorp et al. "The localization of hearing impairments in athetoids," *Acta Otolaryngologica*, 48: 404, 1957.
4. Golambos, Robert. "Suppression of auditory nerve activity by stimulation of efferent nerve fibers to cochlea," *Jl. Neurophysiology*, 19: 424, 1956.
5. Neff, W. D., Fisher, J. F., Diamond, I. T. and Yela, M. "Role of auditory cortex in discrimination requiring localization of sound in space," *Jl. Neurophysiology*, 19: 500, 1956.
6. Schuknecht, Harold F. and Woellner, Richard C. "Hearing losses following partial section of the cochlear nerve," *Laryngoscope*, 53, 441, 1953.
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Preparation of the Audiologist and His Responsibilities in the Residential School for the Deaf

ROBERT E. ROACH

Dr. Roach is director of the hearing and speech clinic and assistant professor of audiology in the department of otolaryngology of the Medical College of Alabama.

In order to obtain information on the subject of the preparation of the audiologist and his responsibilities in the residential school for the deaf, a questionnaire was sent to all superintendents of residential schools. A matched questionnaire was sent to all directors of clinics working with hearing and speech problems and to all personnel with advanced certification in the American Speech and Hearing Association.

When the questionnaires were returned the data were treated to give information on the following points:

First: In order of importance, what was the priority assigned by the superintendents to the various responsibilities of the audiologist?

Second: In what order did the university and clinic personnel rank the priority of duties of the audiologist?

Third: Was there significant agreement or lack of agreement between the two groups in the priority they assigned to the responsibilities of the audiologist?

Fourth: In what priority do the superintendents rank the subject matter needed to prepare the audiologist for his responsibilities?

Fifth: In what priority did the clinic and university personnel rank the subject matter to be studied by the audiologist?

Sixth: Was there significant agreement or lack of agreement by the two groups in the priority assigned to the subject matter to be studied by the audiologist?

Of the 65 questionnaires sent to the superintendents 57, or 88%, were returned. Of the 88 questionnaires sent to the clinic and university groups 56, or 64%, were returned.

From the data obtained, only the response to parts of the survey will be presented. The results reported represent a preliminary statement of the findings and not a final report. One of the two questions submitted to the superintendents and to the members of the clinic and university group was:

> Below are listed suggested duties of the audiologist. Rank order these duties, i.e., the lowest number (1) equals the most important responsibility; the second most important function is marked (2), etc. If any of the suggested duties are not considered responsibilities of an audiologist, write *NO* in the appropriate space. The suggested duties follow:
>
> (a) Research on problems and education of the deaf
> (b) Routine audiometric tests
> (c) Assist in differential diagnosis upon which admission to the school depends
> (d) Hearing aid selection
> (e) "Trouble-shooting" of group auditory training units and individual hearing aids
> (f) In-Service-Training of academic staff. Instruction to relate to audiological information pertinent to education of the deaf
> (g) Give auditory training, speech and speechreading as individual instruction

(h) Responsible for program of parent counseling and guidance
(i) School psychologist
(j) Other (please list)

From the data received, the relative importance of the suggested duties was determined initially from the arithmetic mean. In order to determine whether this rank order represented the true rating of each duty, tests of statistical significance were applied to the data. That is, all duties were treated in order to obtain a rank order of responsibilities that were truly different in their importance, one from the other.

Table I presents the significant rank order of the audiologist's duties taken from the data received from the superintendents.

Observation of Table I gives the rank order of duties that were significantly different from each other at the 5% or 1% level of confidence. The responsibilities were rated in with number 1 representing the most important function.

Rank orders number 1 and 2 are significantly different from each other and from number 3. It will be noted that in the number 3 position are "in-service training" and "hearing aid selection." Application of t-ratio revealed that below the 5% level of confidence, these duties were not significantly different, even though the arithmetic mean for "in-service training" was somewhat lower than the mean for "hearing aid selection."

Number 4 stands alone as being significantly different from the others. Below position 4 the priority given the duties is confused. "Research," "auditory training, speech, and speechreading" and "responsibility for parent counseling and guidance" show no significant difference between them below the 5% level of confidence. "Responsibility for parent counseling and guidance" overlaps in position 5 and 6 and shows no significant difference from "school psychologist."

In summary, as rated by the superintendents, the first three or four duties of the audiologist are clear cut; below this point it is difficult to rate with any certainty the priority of importance of the remaining responsibilities.

The data received from the members of the clinic and university group on the question of priority of duties of the audiologist were treated in the same manner as that received from the superintendents.

Table II presents the significant rank order of duties as determined by the university and clinic personnel.

Observation of Table II reveals rank order of duties that were significantly different in priority at the 5% or 1% level of confidence.

It will be noted that positions 1 through 5 are quite clear-cut and that each is significantly more important than the one that follows it. In position number 6 there are two duties, i.e., "auditory training, speech and speechreading" and "trouble shooting." These were shown by t-ratio to be not significantly different below the 5% level of confidence. "Trouble shooting" also overlapped with "responsibility for parent counseling and guidance" in position number 7. The responsibility of being the "school psychologist" was assigned the number 8 or last position.

It is now appropriate to determine whether there was a significant difference of opinion between the two groups concerning the relative importance assigned to each duty by the two groups.

For purposes of presentation, where the application of the t-ratio to the data indicated

TABLE I
Rank Order of Duties of the Audiologist as Rated by Superintendents of Residential Schools for the Deaf

Mean	Duty	Significant Rank Order
100		
200	Routine Audiometric Tests	1
300	Assist in Differential Diagnosis	2
400	In-Service Training	3
	Hearing Aid Selection	3
500	Trouble-Shooting of Group and Individual Hearing Aids	4
600	Research on Problems and Education of the Deaf	5
	Auditory Training, Speech and Speechreading	5
700		
	Responsible for Parent Counseling and Guidance	6
800		
	School Psychologist	6
900		
1000		

that there was no significant difference at the 5% level between the ranking of a particular duty by the two groups, the means have been shown as being equal.

Where the t-ratio revealed that the importance assigned to each duty by the two groups was significantly different at the 5% or 1% level of confidence, the arithmetic means were graphed. These are connected by a jagged arrow with the level of confidence recorded on or below the arrow. These results are recorded in Table III.

Observation of Table III reveals that the superintendents agreed with the clinic and university personnel concerning the importance of responsibilities, even though the actual mean rank may be somewhat different.

Further observation of Table III shows that on the four remaining rated duties, there was disagreement at the 5% or 1% level of confidence.

The mean rank order of "Assist in differential diagnosis" was placed in the number 2 position by the superintendents, but the clinic and university personnel rated it as the most important function of the audiologist. In other words, the clinic and university personnel placed considerably more emphasis on this responsibility than did the superintendents.

A second responsibility where a significant difference in emphasis occurred concerned the duty of "trouble shooting of group and individual hearing aids." The two rankings were significantly different beyond the 1% level of confidence, thus indicating that the superintendents placed considerably greater emphasis on this duty than did the university and clinic group. In fact, the superintendents rated it number 5 (by arithmetic mean) and the clinic and university personnel assigned it to the number 7 position.

A third function of the audiologist upon which the two groups placed different emphasis concerned the question of "research." The superintendents ranked "research" in the number 6 position and the university and clinic group placed it in the number 7 place. T-ratio implied that this discrepancy was a true one at the 5% level of confidence. In other words, the clinic and university group considers the function of research in a residential school as more important than did the superintendents.

The responsibility of being the "school psychologist" was ranked last by both groups. However, the superintendents ranked it significantly more important than did the university and clinic groups.

There was disagreement by the two groups at or above the 5% level of confidence on the following duties of the audiologist:

a. The clinic and university group placed greater emphasis on "differential diagnosis" and on "research."

TABLE II

Rank Order of Duties of the Audiologist as Rated by University and Clinic Personnel

Mean	Duty	Significant Rank Order
100		
	Assist in Differential Diagnosis	1
200		
	Routine Audiometric Tests	2
300		
	Hearing Aid Selection	3
	In-Service Training	4
400		
	Research on Problems and Education of the Deaf	5
500		
600		
	Auditory Training, Speech and Speechreading	6
	Trouble-Shooting of Group and Individual Hearing Aids	6
700	Trouble-Shooting of Group and Individual Hearing Aids	7
	Responsible for Parent Counseling and Guidance	7
800		
900		
	School Psychologist	8
1000		

b. The superintendents attached more importance to "trouble shooting" and "school psychologist."

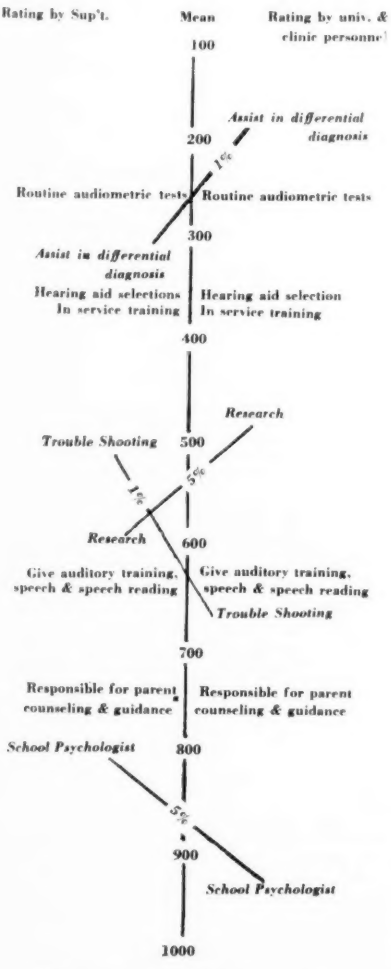
We have just discussed the responsibility of the audiologist in the residential school for the deaf. Let us now consider his preparation for the duties expected of him.

To obtain information on this subject, the superintendents and the clinic and university group were asked to complete the following question:

> In your opinion what should be the academic background of the audiologist? Suggested areas of study are listed below. Please rank order these fields of concentration, i.e., the lowest number (1) indicates the most important subject to study;

Table III

Comparison between the priority of duties assigned the audiologist by the superintendents and by the university and clinic personnel



Where no significant difference was found below the 5% level of confidence the ratings are shown as equal and are in Roman type.

Where significant difference was found at 5% or 1% levels of confidence, the duties are in italics and connected by an arrow upon which is marked the level of significance.

the second most important area would be marked (2), etc. If any of the suggested subjects are felt to be unnecessary or not applicable to the training of the audiologist, write *NO* in the appropriate space.

a. Clinical psychology
b. Experimental psychology
c. Public school elementary education
d. Education of the deaf
e. Speech correction
f. Electronics
g. Audiology
h. Social work
i. Psychological guidance and counseling
j. Other (please list)

The data obtained on this question were treated in the same manner as that received on the question relating to the duties of the audiologist. The arithmetic means of the ranking for each study area were determined and the data treated statistically by t-ratio in order to assess whether each academic field was rated significantly different from the others at the 5% or 1% level of confidence.

Table IV presents the significant rank order according to arithmetic mean of the areas of academic preparation.

Observation of Table IV shows graphically the areas of study that were significantly different from each other at the 5% or 1% level of confidence. The academic fields were rated in sequence with number 1 representing the most important field of study for the audiologist.

The data received from the members of the clinic and university group on the question of priority of academic areas of study were treated in the same manner as that received from the superintendents.

Table V presents the significant rank order of areas of academic study that were significantly different in priority at the 5% and 1% level of confidence.

It is now pertinent to determine whether there was a significant difference of opinion between the groups concerning the relative importance assigned to each study area.

For purposes of presentation, where the application of the t-ratio to the data indicated that there was no significant difference at the 5% level of confidence between the ranking given each subject area by the two groups, the arithmetic means have been shown as being equal.

Where the t-ratio revealed that the importance assigned to an academic area by the two groups was significantly different at the 5% level or above, the arithmetic means were graphed. These are connected by a jagged arrow with the level of confidence recorded on or below the arrow. These results are recorded on Table VI.

TABLE IV
Academic Background of the Audiologist as Determined by Superintendents of Residential Schools for the Deaf

Mean	Area of Study	Rank Order According to Significance
100	Audiology	1
200	Education of the Deaf	2
300	Speech Correction	3
400		
500	Electronics	4
	Clinical Psychology	4
600	Psychological Counseling and Guidance	5
	Public School Elementary Education	5
700	Experimental Psychology	6
800	Social Work	7
900		
1000		

TABLE V
Academic Background of the Audiologist as Determined by Clinic and University Personnel

Mean	Area of Study	Rank Order According to Significance
100	Audiology	1
200		
300	Education of the Deaf	2
	Speech Correction	2
400		
500	Clinical Psychology	3
	Electronics	4
	Experimental Psychology	5
600	Psychological Counseling and Guidance	5
	Public School Elementary Education	6
700		
800	Social Work	7
900		
1000		

Observation of Table VI revealed that the superintendents and the clinic and university personnel agreed concerning the relative importance assigned to the following areas of study, even though the actual rank orders varied somewhat. These areas of study were: Speech correction, Clinical psychology, Public school elementary education, and Social work.

The remaining five areas of academic study were significantly different in the emphasis placed on them by the two groups, even though when ranked by arithmetic mean some were in the same sequential order.

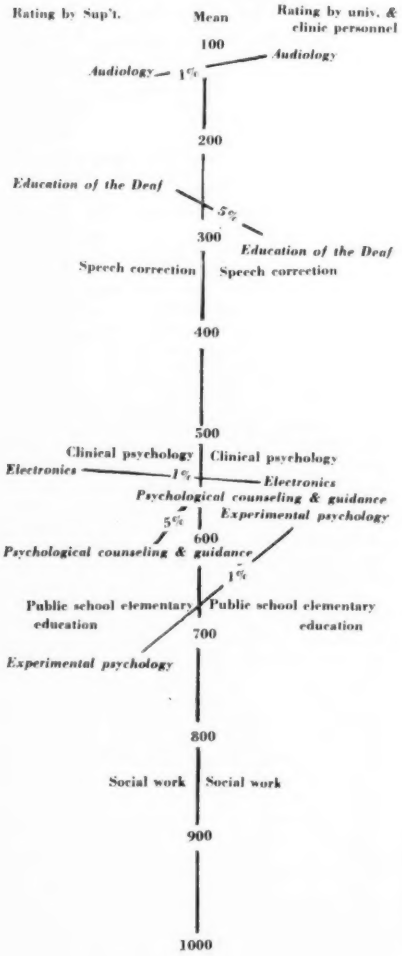
The clinic and university personnel placed significantly greater emphasis on the study of "audiology" than did the superintendents, even though both groups ranked the subject as the most important in the preparation of the audiologist. The clinic and university group also considered training in "psychological counseling and guidance" and "experimental psychology" more important than did the superintendents.

The superintendents assigned greater emphasis on training in "education of the deaf" and on "electronics" than did the members of the clinic and university group.

Other data from the survey showed that the majority of superintendents and the majority of university and clinic personnel believed that the *minimal* preparation for the audiologist was an M.A. degree with Basic Certification in Hearing with the American Speech and Hearing Association. Within the limits

Table VI

Comparison between the priority of study areas assigned by the superintendents and by university and clinic personnel



Where no significant difference was found below the 5% level of confidence the ratings are shown as equal and are in Roman type.

Where significant difference was found at 5% or 1% levels of confidence, the academic areas are in italics and connected by an arrow upon which is marked the level of significance.

thereby suggested, it is questionable whether the audiologist should be expected to be professionally competent in more than three or four areas of study.

Review of the data shows that the priority assigned by the two groups to the first four duties were in good agreement. For example, the superintendents and the clinic and university personnel listed the following responsibilities among the first four most important duties of the audiologist:

a. Routine audiometric tests
b. Assist in differential diagnosis
c. In-service training of academic staff
d. Hearing aid selection

While the order of importance of these responsibilities varies, the fact remains that both groups included them among the four most important duties.

Below this point greater disagreement occurs, particularly in reference to the importance of "research" and "trouble shooting" of the hearing aids.

Summary of the suggested academic preparation of the audiologist, as revealed by the data, also shows a definite agreement as to the priority assigned to the first three areas of study: audiology, education of the deaf and speech correction. Below the first three rated areas of study, it is difficult to assign priority with certainty.

It is somewhat surprising and pleasing to know that, in spite of the diversity of interests of the individuals responding to the survey, there is a commonality of thinking between those who prepare audiologists and the persons who employ them to function in the residential school for the deaf.

On the other hand, one cannot overlook the fact that a considerable number of individuals in each group assigned importance to areas of study and to responsibilities which in a practical sense are hardly to be considered appropriate to the preparation or function of the audiologist in the residential school for the deaf.

In a statistical sense, the overlapping of items below the third or fourth position may be unimportant. However, for the individual who may be expected to be competent and to perform in some of the questionable areas, it may be of vital importance.

It is therefore suggested that in the minds of a number of persons, there is need for clarification of the preparation of the audiologist for his responsibilities in the residential school for the deaf.

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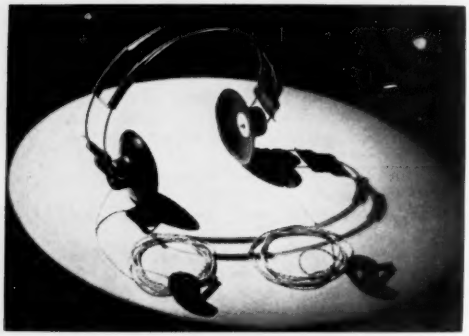

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Relation of Some Audiologic Findings to the Use of Hearing Aids

ROBERT GOLDSTEIN

Dr. Goldstein is a research associate in the department of otolaryngology in the Jewish Hospital of St. Louis. This is his synopsis of the paper he read at the meeting.

Recent clinical literature contains claims that binaural hearing aids and pseudo-binaural aids (single aid with Y-cord) are superior to the conventional monaural aids. The few published clinical and experimental studies, however, do not give assurance that deaf children will find any one kind of hearing aid superior to the others. These studies were on adults, and most were either done on patients with conductive hearing losses,[4] or on a single patient with a sensori-neural loss.[1,2]

In an intensive study by Di Carlo and Brown[3] on 80 normal and hard of hearing adults, there were 20 patients with sensori-neural losses. Although their losses were less severe than those of most children in schools for the deaf, this was the group that most nearly resembled deaf children. Di Carlo and Brown found that the majority of the 20 patients preferred binaural to pseudo-binaural and monaural hearing aids with respect to the clarity and naturalness of speech, but that certain disadvantages of binaural aids outweighed these benefits. They also found binaural hearing aids to be measurably superior with respect to the ability to localize sounds, and with respect to improvement of threshold (mean improvement of only 2.5 db).

Discrimination of speech, a more important problem for deaf children, was not superior through binaural hearing aids when compared to pseudo-binaural or monaural hearing aids, or through pseudo-binaural compared to monaural aids. The study of Di Carlo and Brown does not prove that deaf children will not find binaural hearings aids superior to monaural or pseudo-binaural aids, or pseudo-binaural superior to monaural aids for the understanding of speech. It should, however, restrain the enthusiastic predictions in favor of binaural hearing aids, and should stimulate definitive studies along similar lines on deaf children.

1. Bergman, M. Binaural hearing. *A.M.A. Archives of Otolaryngology*, 1952, 66: 572-578.
2. Carhart, R., The usefulness of the binaural hearing aid. *Journal of Speech and Hearing Disorders*, 1958, 23: 42-51.
3. Di Carlo, L. M. and Brown, W. J. *An experimental investigation of the effectiveness of binaural hearing for adults with hearing impairment*. Syracuse University Research Institute, 1958,x,125pp.
4. Markle, D. M. and Aber, W. Clinical evaluation of monaural and binaural hearing aids. *A.M.A. Archives of Otolaryngology*, 67: 606-608.

The Audiologist in the Residential School

FRANK FRUEH

Dr. Frueh is audiologist at the Indiana State School for the Deaf, Indianapolis.

There is considerable agreement that audiology as we know it today has enjoyed its greatest period of growth and development since the close of World War II. In the wake of the successful rehabilitation centers established during World War II, colleges, universities, hearing societies and other organizations began to sponsor clinics and centers concerned with the rehabilitation of hearing impaired adults and children.

At first, these centers were primarily concerned with the selection and fitting of individual hearing aids. From this early preoccupation with measurements of hearing loss and hearing aid evaluation, other clinical activities have been introduced until today it is often easier to define an audiologist's role by negation rather than description.

Initially, audiologists were employed in universities and community hearing centers, but soon some were to be found in veterans' audiology centers, state departments of health and education, and in hospitals. Although few in number, by comparison to the aforementioned employment settings, audiologists are also functioning in schools for the deaf.

Establishment of audiological services in schools for the deaf is a relatively recent development, yet it is further evidence of the changing concepts in audiology and the interrelation of audiology and education of the deaf. However, inasmuch as this working relationship has, for the most part, been of short duration, the nature of the audiologist's role has not always been clearly understood. It would, therefore, seem worthwhile to discuss the role of an audiologist in a residential school and to report on the status of audiological services in schools for the deaf.

There are several approaches to the presentation of the first topic; however, it is felt that a brief summary of an audiological program at one school for the deaf might serve, not as the model, but rather as a general guide to the discussion.

1. The primary function of the audiologist in this particular school is the evaluation of children who, on the basis of an auditory disorder, have been referred to the clinic.

2. Audiologic follow-up of children who are already enrolled in the school.

3. Guidance and cooperative assistance to the two fulltime speech and hearing therapists; one in the intermediate department and one in the high school department.

These three items consume approximately 80 percent of the audiologist's time. The remaining time is being spent in such activities as consulting with teachers on use of auditory training equipment, discussing auditory training methods and procedures with teachers, staff conferences, and administrative duties.

This particular school inaugurated its program three years ago. The equipment on hand consisted of one pure-tone audiometer. The clinic facilities now include a large basement room in which is located a prefabricated sound booth, two clinical audiometers, a GSR unit, a sound level meter and testing material useful for screening other aspects of a child's behavior. An electronic technician is employed part time on a contract basis to service all equipment.

This fall a new self-contained primary unit will be completed which will also house the audiology clinic, consisting of sound test rooms, a laboratory-workshop room, a children's test room, offices and additional clinical and laboratory instrumentation. Plans for an in-service training program are crystallizing and the audiologist will also participate in this activity. Still in the discussion stage is the development of a teacher training program in cooperation with a nearby university.

Up to this point the basic function of the audiologist has been implied; he is concerned with the assessment of an individual's auditory behavior, with the educational recommendations and with referral to other disciplines as indicated for further evaluation. An audiological assessment consists of more than routine audiometry. There is no one test which can describe completely the functioning of an auditory system or that can establish the over-all pattern of a child's behavior. This means, therefore, that many facets of a child's behavior must be evaluated. An audiologist is concerned with advising parents of a hearing impaired child as to the educational program best suited to the child's needs. What is implied here is that it is the audiologist's responsibility to know and understand not only the needs of hard of hearing children, but also those of deaf children.

The need for periodic reassessment of a child enrolled in a program of special education is self-evident. Only after some children have been exposed to a training program for an extended period of time is it possible to describe their problems adequately. Since the resident audiologist is on the scene, he is in a favorable position for audiological follow-up. He can observe the child in day to day situations as well as consult with the child's teacher concerning classroom behavior.

Other functions of the audiologist include parent counseling, research, evaluation of hearing aids and teaching (in-service or teacher-training).

That audiologists do have a role in schools for the deaf is implied in the title of this paper, but how many schools have audiologists? Do only the large schools have audi-

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ological programs? To obtain the answers to these and other questions a questionnaire was prepared and distributed to administrators of 66 public residential schools in the United States. The response to the questionnaire was excellent; 61 of the 66, or 92%, returned the completed questionnaire. Table I summarizes the information received.

Table I

Average number and range of pupils in 61 public residential schools.

	Average Enrollment	Range
17 Schools with Audiologists	304	475–131
44 Schools no Audiologist	209	502–10

The survey also revealed that the first full-time audiological program at a public residential school was established 26 years ago, in 1931. Seventeen years later, in 1948, the number had risen to only three. In 1951 there were seven audiological programs, and since 1953, ten more schools have inaugurated audiological services. A rapid increase in the number of schools establishing audiological service is clearly indicated.

An attempt was made to determine the extent of the audiological programs at the several schools. Included in the questionnaire were inquiries regarding certification and academic degrees of the audiologist. All but one of the 18 audiologists had been trained at the master's degree level, or higher; and only three do not hold a certificate or meet certification requirements established by the American Speech and Hearing Association.

It would seem, according to the information reported, that these 17 audiology clinics have adequate facilities and do not lack for the necessary clinical testing equipment. At four of the schools, new physical facilities are under construction or have been completed during the past school year.

The 44 schools which do not have full-time audiologists utilize several means to provide audiological services. In some schools a teacher or principal devotes from 10 to 50% of his or her time in providing this service. This varies from routine pure-tone testing to more involved and complex evaluations. Two of the 44 schools have full time psychologists who are responsible for the psychological-audiological evaluations of children, and one school stated that it has occasionally engaged the services of an audiologist on a consultant basis.

Twenty-three of the 44 schools have local or state audiological centers which provide service, some of which is limited in quality and/or quantity, and some of which includes pre-admission screening and periodic follow-up. The schools were asked to indicate how satisfactory this outside service was in terms of meeting the needs of the school program. Eleven schools rated the outside services as either good or excellent and ten rated this service as fair, poor or unsatisfactory. Some of the comments were: "The audiologist is almost entirely involved with area children from the public schools," and "The quality is good, but the quantity is unsatisfactory."

Perhaps the most significant point relevant to the 44 schools which do not have full time audiologists is that only nine do not provide some type of audiological service either within or outside the school. Eleven of the 44 schools plan to establish either audiological services at their schools or with an outside agency within the next two years. Three plan to employ full-time audiologists, three plan to employ a part-time audiologist, and the remaining schools are planning an off-campus cooperative type clinic with a hospital, university, or state department of education. It is interesting to note that of these 11 schools, six already are making some use of audiology clinics outside their schools and four of these same six expressed a general dissatisfaction with this service.

As stated earlier, five of the 17 schools which have full-time audiological programs have pupil enrollments of 190 or less. Specific reference to two of these smaller schools seems warranted, since they serve to illustrate how not only the problem of size, but possibly also the monetary aspect can be overcome.

Two years ago the New Mexico School for the Deaf, with a pupil enrollment of only 140 children, established an audiological center. In addition to providing an in-patient type of program, this clinic also serves as a diagnostic speech and hearing clinic for children and adults in the local community and surrounding territory. This clinic is also a regional rehabilitation hearing center for the Veterans Administration.

The Rhode Island School for the Deaf, with a current enrollment of only 131 children, established an audiology center four years ago. In addition to serving the pupils enrolled in the school, this particular clinic plays a major role in the state's hearing conservation program. Public school children who fail the initial phase of the local school's hearing test program are referred directly to this audiology clinic for follow-up testing, referral to otologists and other disciplines, and educational recommendations. Clinic personnel travel to distant communities to counsel and work with teachers and parents, and some children receive speech and hearing therapy at the clinic on an out-patient basis.

Here in the State of Pennsylvania, one of the state's six regional audiology centers has been located at a small school for the deaf for five years, and its services are available to the school and community alike. These,

then, are working examples of how some representative small schools have solved the problem.

The results of a survey of 66 public residential schools for the deaf indicate an increased awareness of the need for a close relationship between the fields of audiology and education of the deaf. This need is being satisfied either by schools establishing their own audiological clinics or by making arrangements with existing clinics outside the school.

Auditory Training

Friday, 10:45-12:30 P.M.
June 27

Chairman: Josephine Prall, M. A., Hearing Consultant, South Carolina School for the Deaf, Spartanburg

Aims and Goals of an Auditory Program in a School For the Deaf

ELIZABETH TITSWORTH

Miss Titsworth is assistant superintendent of the New Jersey School for the Deaf in Trenton.

We who work with the deaf and hard of hearing have come to realize that every acoustically handicapped child should be given an opportunity to make the maximum use of whatever residual hearing he possesses. This is our primary aim for training hearing.

We strive to provide all children who have a hearing loss with training that will develop their residual hearing to the maximum in order that they may use it as a means of improving their communication skills and learn more readily. Specific goals for such a program are: improved lipreading, language growth, improved speech, broader academic achievement, better mental health and aesthetic growth and enjoyment.

Our aims and goals have been basically the same since we first started to train hearing. Our expanded program makes it possible for the children to learn more, acquire skill faster and in a more normal manner. A child who is able to reinforce what he sees in lipreading with some pattern of hearing is greatly helped.

Observations of children who have been fitted with aids at an early age have broadened our aims and expanded our techniques. These very young children have been surrounded by amplified sound in a comparatively normal manner. The sound has come to have a meaning for them and they have developed the ability to interpret intelligently what they hear and to combine it with lipreading. Children at this early age let the amplified sound flow in, and it becomes part of their understanding. This amplification seems to make it possible for many forms of sound to become part of both their conscious and subconscious minds. All teachers of the deaf teach language and speech, in addition to their special subject. This also should be true of the training of hearing. However, for success, each teacher must believe in the value of hearing aids and if a teacher has a negative attitude toward the acoustic program it might as well be stopped. We have found that a happy, easy approach is necessary and there should always be the provision for success in every lesson for each child. With the varying amounts of hearing that are present in any one class, the teacher's ingenuity is always in demand. She must know her children well, and know how much she should expect from each child either from listening alone or from the combination of listening and watching. The profoundly deaf child who needs to watch while he listens in order to understand has a positive psychological reaction to successful auricular work, and we should be careful not to deny him this possibility.

Schools for the deaf are no longer deciding whether or not there should be an acoustic program. However, schools do have to consider how much they can afford to spend on group and individual aids, and personnel. Ideally every classroom should be equipped with an aid, and each student who can profit from an individual aid should have one. All schools cannot do this immediately, for it is an expensive program. A five-year plan of building up equipment may be advisable. As group and individual aids are added, the time comes when a person is needed to coordinate the program, to work side by side with the teachers, to demonstrate and inspire them, and to check and handle minor repairs and test hearing. This is a necessary part of the program.

A guide or outline is needed. This guide must be flexible and continuous and cannot be broken down into nursery, first year, second year and so forth. Each child's degree and type of hearing loss usually determines the rate of speed at which the child will learn to use it to best advantage. This factor must be taken into consideration in the outline.

The nursery work must be done in an informal manner, frequently using the circumstances and the situations for clarifying what

the child hears. For example: with your three- or four-year-old, you would say after he has come in from play, "Look at your hands. They're dirty. Go wash them." He does not understand, through hearing, all you have said, but circumstances, his lipreading combined with his hearing make for understanding. At this point understanding, not accuracy of hearing, is what we want. These early years lay the foundation for later development. The nursery and preschool training must evolve from the children's experiences, possessions and needs in order to have meaning for them.

Our guide is known to all nursery and lower school teachers. It includes the philosophy and objectives. Suggested examples of various types of acoustic periods, definite exercises which are patterns, materials and sources of material are included. We emphasize ways to include speech, language, conversational language, reading and number work. The outline gives the beginning steps, such as using gross sounds, music and the human voice. It guides the teacher through the steps of training hearing to where a child is responsible for listening to himself, his classmates and teachers. Now the usable hearing is a tool for learning and a force that stimulates his thinking and daily living.

The nursery and preschool program has been discussed more in detail than the rest of the outline. The informality of handling the training at this age could mislead one into thinking that a child can understand what he hears when he puts on an aid. This is so wrong. Understanding comes only through teaching the child to listen and interpret what he hears.

A daily program with definite practice periods is needed throughout the lower school and may be extended into the middle school. This practice should be meaningful, and not a day after day drill of meaningless listening to gross sounds, nonsense syllables and acoustic tricks.

Some points that we find necessary to keep in mind as we plan each lesson are: In the beginning two or three short periods are more valuable than a longer one; as is true for all good teaching, the teacher in an auricular lesson must have clearly in mind what she expects of the children and the children should know what is expected of them. In each lesson there should be something definite to listen to, or for, and provision should be made so that the children are able to check themselves.

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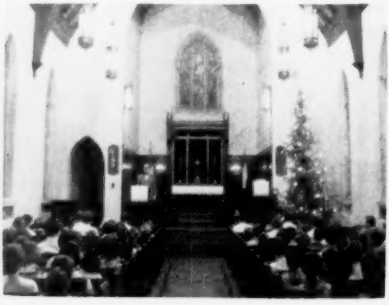

ter, but a skill that is being developed to aid the child.

We have respect and hope for this skill as we look around and see our children with losses of 75 to 85 db develop into hard of hearing children as they learn to use it and combine it with lipreading. Others who profit are slow children with a moderate loss who learn better after being fitted with an aid and trained to use it; the profoundly deaf children whose lipreading is definitely improved by acoustic training, and hard of hearing children, who can hear almost normally with amplification.

Many of these children are apt to be more nervous, tense and noisier. The strain of listening seems to show in this way. This may concern us at times, but as we weigh the value of this usable hearing it would seem unfair not to give them the training.

The aim of auricular training is that deaf and hard of hearing children may have a better education and better preparation for life. Recent inventions and the perfection of the modern hearing aid have made it possible for us to help many children who earlier could not have been reached. The findings of our speech and hearing clinics have widened our understanding of how some deaf children hear. We have developed new techniques, and modified some of our older ones and will continue to change and modify as research points up facts. At present we know that auditory training has taken an important place along with lipreading, speech and language in the teaching of deaf and hard of hearing children.

Enriching Deaf Children's Experiences Through Auditory Training

BETTY L. BOLLBACH

Miss Bollbach teaches in the primary department of Lexington School.

We have passed the stage, as teachers of the deaf, where we are trying to determine the value of auditory training. We know it works. We are now looking for newer and better methods of presenting auditory training in correlation with the whole school curriculum.

I will discuss methods and materials, but methods and materials alone will not effect the teacher's goal. The primary requisite for an effective auditory training program is that auditory training goes on all day long. Listening must be continuous. At Lexington School, each classroom is equipped with a group aid which all the children use throughout the entire school day. In addition, every child wears his or her own personal aid which is used all the time after school hours. In this way, our children are never without amplification and they become accustomed to sound and listening because of continuous and consistent audition.

We must eliminate the thought that all children may not respond to auditory training, and rely on the belief that all *can* benefit from auditory training. We can't afford to take the chance that a child may not benefit for even the smallest gain will help.

The aim of any auditory training program is to bring about improvement in the speech of our deaf children. We have seen, both from research and our own observation, that the continuous use of hearing will bring about better rhythm, better speech patterns and better control of the voice.

Auditory training can be a means of accelerating educational achievement. It is much more than just another subject we must teach. Nor is it merely an isolated period of time when we ring cow-bells and blow horns and ask the child, "Who says 'Bow-wow'?" Auditory training is the meaningful repetition of meaningful material. It is training that should be tied up with the entire curriculum. We have come to the place where we now teach language, reading, speech and other skills on the basis of spontaneity and need. Why should we not, therefore, train the remnant of hearing with the same functional type of teaching?

There are two types of auditory training material, the first of which is commercial records. Even though listening becomes an integral part of every day's activity, it is often necessary to plan a special period of time for systematic auditory training. For instance, it may be necessary to differentiate between a man's voice and a lady's voice or between a live voice and a recorded voice. Phonograph records, wisely chosen for a specific purpose, can be very helpful.

The second type of material is the child-motivated, spontaneous material that comes from everyday classroom situations. Here we have school experiences, trips, language principles, speech lessons and visits. We can, with just a little imagination, take a shopping excursion to the nearby supermarket and turn it into a story to be read and enjoyed. Then we can find sounds to simulate the ringing of the cash register, so that when the children read, "The clerk rang up the cash register," they not only read words, but have some feeling for the phrase, know that some kind of sound was involved, and have some idea of what kind of sound it was. It is with this type of auditory training that we may be able to add a new dimension to the meaning of language, and perhaps help our deaf children enjoy the same warmth and color and feeling of our language that hearing children enjoy.

Using child-motivated, everyday experiences gives us a chance to tie auditory training in with the total day's work. By taking material that is within the child's experience, we can add to this experience and give it richness and depth. Furthermore, we can use this type of teaching to reinforce what has already been learned, as well as create endless possibilities for repetitive audition of meaningful material. Auditory training may be our aim, but while we are training the sense of hearing, why not use subject matter from which the child can benefit?

To be more specific, I would like to tell you about various occurrences in my classroom this past school year, and show you what we did to derive the fullest benefit from our experiences. In my auditory training program at Lexington School, I have found the tape recorder and the filmstrip to be indispensable aids.

The father of one of my pupils began working at Idlewild Airport in New York. The report of this event to the class stirred up such interest that the children began collecting pictures of airports and every conceivable kind of aerial transportation. We talked a great deal about the subject, read stories, wrote imaginary stories involving air travel, read time schedules and air route maps, and made a scrapbook from all the pictures and brochures we had collected. When we were ready, we took a trip to the airport which was one of the highlights of the year.

Upon our return, we wrote the story of our trip and made it into a little book which we illustrated. In addition to the description of our trip, the story included such phrases as "the wh-r-r-r-r-r of the motors" and "the zoom of the plane overhead." Later, I recorded the text of the story on tape and dubbed in the sounds. The children listened to this tape recording and read our homemade book over and over again. Here was real listening motivated by real interest.

After the airport trip the children became interested in various types of transportation and began collecting pictures depicting different ways of travel. This study in itself led us into many valuable experiences, but, in addition, we recorded on tape all the different sounds made by these various methods of travel—including a wagon, car, truck, locomotive and even horses' hoofs.

To work on the discrimination for live speech, we carried this project over to a little game in which the teacher's voice said, "Let's go on a trip on the bus," or "Let's go on a trip in an airplane." To make it even more difficult, the teacher's voice said, "Let's go for a bicycle ride," or "Let's go for a bus ride." The children had to listen to the speech and pick out the right picture.

Another time, one of the children borrowed a book of nursery rhymes from the library and became very much interested in Mother Hubbard's cupboard. Just for fun, we drew a little cupboard on a piece of cardboard and the children collected pictures of all different kinds of food to put on the empty shelves. Before we knew it, we had a new auditory training game, for here was a good chance to work on phrases such as "a jar of jam," "a bowl of popcorn," "a bottle of catsup," " a box of candy." Each child held a picture and listened for the teacher to say, "Let's give Mother Hubbard a box of candy," or "Let's give Mother Hubbard a bowl of soup." The children placed their pictures on one of the shelves when they heard the name of their item called.

We used this game in speech work also. When working on the particular consonant *t*, the children suggested names of foods that begin with the sound of *t*. After we had worked on the speech and listened to the syllables and vowels in each word, the teacher said, "I'm glad Mother Hubbard has some turkey." Whoever was first to hear the word would point it out, and then say it. In this instance we used auditory training to enrich the speech lesson. This game has endless possibilities and through it we learned some good language and speech besides doing a lot of listening.

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children are another good source of auditory training material. One child in my class told about an imaginary cuckoo bird that flew out of his clock. The children began imagining all sorts of unusual things that Little Cuckoo encountered on his trip into the great big world—such as the big silvery airplane roaring overhead and the friendly tugboat chugging up the river blowing his whistle to say hello. We illustrated the text with some pictures and used this story as a reading lesson. Later, we made a filmstrip of the pages of this book and recorded the story on tape, incorporating all the sounds for additional listening. We combined reading with listening in this auditory-visual-kinaesthetic approach.

Another type of auditory training we have ventured into this year is that of working with words that talk—onomatopoetic words—words that convey sounds to hearing people. This brings another dimension to the deaf child's language, giving him a sense of sound by adding warmth and color and feeling to his language through auditory training. For instance, there are simple words that we use every day such as snap, crash, bang, boom, zip, scratch and crack. But what auditory sensation does the deaf child experience when he reads a phrase such as "The click of a key" or "The twig snapped"?

We have also worked on phrases such as "slammed the door," "rattled the newspaper," "beeped the horn," and "scraped the dish." We have tried to distinguish between loud sounds and soft sounds and the degree of intensity of the sound from a reading phrase such as, "The dog barked, growled, yelped, howled or whined." In this way, we have tried to enrich the children's reading comprehension by helping them to understand the finer shades of meaning through an auditory sense of language.

There are many phrases that appear to be soundless, and probably are to many of our deaf children. There are phrases such as "opened the window," "spilled the pail of water," "dropped the book," and so on. Over the course of the past year, we collected pictures to illustrate the words and phrases that came up from time to time. We put them all into a scrapbook and labeled them with appropriate verbalization. In many instances we have been able to record these different sounds.

We have also worked on the development of language concepts through auditory training. We have taken language that has emerged from the children's experiences and used that as auditory training material. From the previously mentioned airport trip, we talked about airplanes that flew around the world. "Around the world" has quite a different meaning from "around the corner" or "around five dollars" or "around three o'clock" or even "around the room." We drew some simple pictures to illustrate the multiple meanings of this concept. Then the teacher named the phrase and a child pointed out the proper picture. In this instance, through auditory training, we were able to reinforce a language concept with the auditory repetition of meaningful material within the experience of the child.

There is one more way of meeting a specific need. I felt it was necessary to be able to differentiate between high voices and low voices, voices that go up and voices that go down, as well as being able to detect the difference between one voice and many voices. Using the perennial childhood favorite, "The Farmer in the Dell," we made a singing tape. On this tape, we had a man's voice that sang up the scale and down the scale. The lady's voice did the same thing. Then the children listened to determine whether it was a man's voice or a lady's voice and whether the voice went up or down. Sometimes the voices sang alone and sometimes together. At the very end, even the pianist joins the chorus and the children listen to many voices.

Now perhaps you can better understand why I said that auditory training is not just another subject we have to teach, but is an integral part of every day's activity and is the meaningful repetition of meaningful material. Auditory training is the auxiliary that adds warmth and depth and feeling to language by enriching concepts that have been acquired through experiences.

Let's Help Them Listen

SISTER MARIANNA

Sister Marianna teaches at St. Joseph's Institute for the Deaf, St. Louis.

A few years ago educators of hearing children were all upset and concerned over a current issue, "Why Johnny Can't Read." Today teachers of the deaf are vitally interested in our subject, "Can Johnny Really Learn to Listen?" And we, at St. Joseph's, now feel that we can answer in the affirmative. Our task of helping deaf children listen has been an interesting and rewarding one.

"Listening," the dictionary says, "means to give attention in order to hear and understand the meaning of a sound or sounds." We all will agree that hearing and listening aren't the same. Hearing is a passive process. Listening is an active process; the mind is active—weighing, considering and drawing conclusions. Listening takes as much skill as reading. It is a habit acquired through interest, motivation, concentration, application, and repetition of satisfying experiences.

Auditory training is teaching the deaf child to listen, that is, to use to a maximum the hearing he possesses in minimum, to get the most from the least, to hear with deaf ears.

This is possible because of interest in, concentration on, and repetition of satisfying experiences. Yes, deaf children can learn to listen, that is, "to give attention in order to hear and understand the meaning of sounds."

Unfortunately we cannot put a hearing aid on a child and expect him to hear as he would put on glasses and see. Helping him learn to hear with a hearing aid must be done systematically. He must learn, with careful and patient guidance, to discriminate among sounds of different intensities, frequencies, and rhythm, to recognize different patterns of stimuli. He must derive meaning from the different patterns if there is to be communication. These patterns must not be devoid of meaningful context, but be heard in contexts that are natural and lifelike.

We have observed that a child with usable hearing, deprived of his hearing aid, even momentarily, appears to be a non-lipreader. Lipreading has been so closely interwoven with his ability to listen that the child has become dependent upon the use of a hearing aid. This, then, is why we at St. Joseph's use and highly recommend auditory training for all children, regardless of hearing loss.

How, then, do we go about teaching auditory training? What is our method? In general, we might say that it is "hearing through seeing." All material used in auditory training has been previously taught and explained so that concentration is centered purely on the task of listening. This material is always placed out as a visual aid for the child to see as he listens.

Before touching on particular subject matter, I want to stress a few preliminary steps that we use for all auditory training work. We write out on scrolls whatever material we intend to use. From these we select two sentences that are different in length and put them in a chart where all can see them. These are visual aids to better effect "hearing through seeing." As the teacher says the sentence, the children look and listen. For beginners it may be necessary to say each sentence about three times, taking care each time to say it exactly the same way, that is, with identical inflection and accent. Incidentally, a good initial procedure would be to first call on a child who is most likely to reply correctly. In this way, the correct listening pattern is being fixed and certainly is being associated with learning. Just a bit of advice in auditory training, as in all other avenues of teaching, never let a child fail. If you have repeated a sentence three times and the child still does not understand, show him what you said. You know his audiogram, encourage him accordingly.

In checking through recitation, you remember that we said to first call on a child who is most likely to answer correctly. Then continue calling on all other members of the class, asking them to distinguish between these same two sentences. For example—"I'm tired," "Would you like to go to the movie?" When these sentences have been sufficiently mastered, select two other scrolls from your previously taught material and repeat the procedure. When these two additional sentences have been mastered auditorially, use them with the first two scrolls. By this time, the pattern of the first two sentences will have been so well fixed that the child will recognize the sentences immediately without having to use the crutch of length, which crutch he is most likely still using with his newest two sentences.

At St. Joseph's, auditory training is not taught as a separate subject, but is integrated into each subject and used as a profitable follow-up for drill work and review. It facilitates the drudgery of memory work and serves as an excellent visual and auditory aid to fix important facts and principles.

Each sister and teacher in our intermediate classes has contributed suggestions for presenting auditory training in different subjects. In speech work the teacher says familiar words, stressing the normal accent. The pupils respond, giving the global pronunciation and indicating where the accent has been placed. After careful listening, the children can also tell how many syllables are in a word.

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The teacher gives a sentence, accenting different words, as: How are *you* this morning? How are you this *morning?* and How *are* you this morning? The child repeats the sentences, giving the same accentuation. We go on to contractions such as: It's on the desk. That's wrong. I'm hungry. Then we use expressions like, alibi Ike, slow poke, butter fingers and pass the buck, got up on the wrong side of the bed, out of sorts, not in a good humor, blew a fuse, on the warpath and hot and bothered.

Or, we might select some good opening sentences that the children can use in writing their weekly letters, as: I can hardly wait to tell you. Guess what happened? What an exciting week-end we had! There is never a dull moment around here. I have so many things to tell you that I don't know where to begin.

Both baseball and football terms make interesting drills.

These, then, are a few examples of how you might use auditory training in speech work. In speech you are expecting a reply, so teach the speech and the accent of each particular sentence before you use it for auditory training.

In using records for auditory training, we choose records that have a lot of rhythm and repetition. We write out the words on a chart, and point to the words as we play the record. The children watch while they are listening, and are hearing and seeing the correct words. They are learning to hear through seeing a pattern.

We clap out the rhythm of the music and the words. After careful listening the child can point to the words as he hears them. Some children are capable of telling us the last word they hear as we pick up the phonograph needle. This requires perfect attention and concentration on the part of the child. Of course, not all children can do this last step. This ability depends upon the amount of residual hearing a child has.

The mastering of language can be brought about through drill work in auditory training. Language for the hearing child begins when he is born into our world of sound. He hears and understands language long before he attempts to use it. Through hearing, spoken language becomes meaningful; through use, it becomes a tool. By his very handicap, a deaf child has less language-listening than a hearing child does. He needs so much more. We must give him a wealth of receptive language—just saturate him with language until it becomes a meaningful tool by which he expresses himself.

We use patterns to present natural language, and structure them to the child's ability, starting out with simple vocabulary and sentences. Natural language is what you and I use every hour of the day. A basic pattern would be commands using the same verb with different objects, such as: *turn on* the hearing aid, the radio, the television, the light or the fan.

Auditory drill work can help to eliminate errors commonly found in the use of the verb *go*. We use such phrases as: go home, go outside, go swimming, go shopping, go to the store, or go to the movie.

Another basic pattern that remedies chronic errors found in a deaf child's language is *verb, what, where*. In working with this pattern we would use: *put it* on the table, in the attic, in the dining room or in the laundry, repeating the verb and the pronoun each time. From these simple sentences we go on to more advanced material.

Reading, the basic tool of learning, is literally loaded with material for auditory training. We review vocabulary, speech and lipreading subject matter by having the teacher give the definition of the word. The child replies by giving the word that has been defined. He can also repeat what the teacher has said, and give the word he has defined. The same procedure can be followed with new expressions. This can be done in three steps:

1. Teacher says the expression. Child repeats it.
2. Teacher says the expression. Child repeats it and gives the meaning.
3. Teacher gives the meaning. Child gives the expression.

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In using work from the reader for auditory training, the teacher reads, stops anywhere, preferably not at punctuation marks, and the child tells where the teacher has stopped, or the last word she has said. This takes careful concentration on the part of the child, but it can be done.

In using arithmetic in auditory training the teacher can review and drill sometimes uninteresting facts in an interesting way. The teacher might say, for example, "Three —— three equals nine," and the child replies, "You multiplied." She might say, "Five —— seven equals twelve," and the child responds, "You added."

To clinch the important definitions such as quotient, numerator, proper fraction, etc., we write these terms on cards where all can see. Then we ask, "When you divide, the answer is called the ——." The child looks, finds the cards and says, "Quotient." This adds up to enjoyable, interesting and efficacious drill.

In history the task of memorizing important facts can be an easy one when it is associated with auditory drill. The teacher can state a fact and have the child identify it, for example, the teacher says, "Abe Lincoln was nicknamed ——." The child answers, "The rail splitter."

As in other subjects, so in geography we find much appropriate material for auditory training as a means of memorizing important facts. The teacher can give the word and the child can answer with the definition, or he, in turn can ask the question of another child, who answers it. In this way we can be sure that the question was heard correctly. The children are learning geography, learning to ask questions and learning to listen.

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Auditory training should be carefully graded, increasing gradually from the very simple to the more difficult material. We have found that auditory training depends not only on the degree of hearing loss, but upon intelligence, attention span, interest and desire to hear on the part of the children, and the interest and enthusiasm of the teachers.

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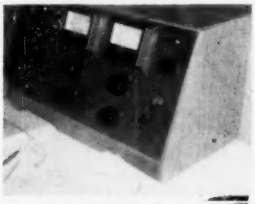

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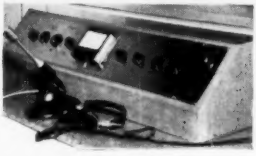

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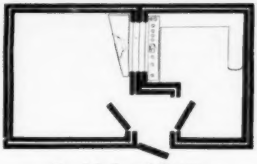

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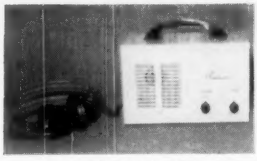

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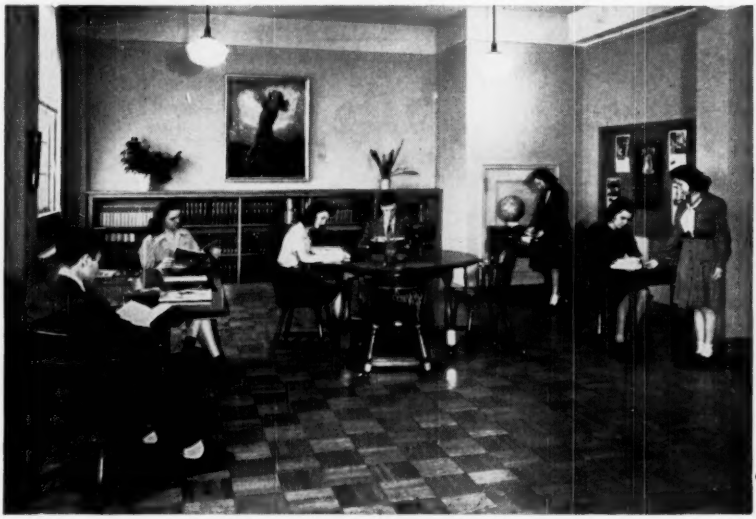

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